SOH-4 Well
Visual Core Descriptions
Volume 2A
From 1494 M To 2001 M

CORE LOG

BOX # 512 HOLE # 4 Sheet A

Depth range 1493.89 to 1496.63 meters Depth range 4898 to 4907 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	5					
Shape	R					
Size(x)	Sm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1					
<1%						
Phenos	✓					
mph	✓					
ol-plag	✓					

Comments____

Plagioclase >5%						
1-5%	3					
<1%						
Rhombs	✓					
Blades/laths						
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite ✓

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite____

Secondary/Alteration	Min.	Fracture Fill	Vesicle Fill
Smectite		✓	
Calcite		✓	
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous			
Chalcedony			
Crystals		✓	
Pyrite			
Epidote			
Gypsum			
Anhydrite			
Other(describe)			

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) dike, micromesicular (5%), olivine phenos & mph (1%) plag rhombs, ol-plag intergrowths (Σ 3%) in a feldspathic gray matrix, olivine alt black. Groundmass becomes finer thin bot and pheno % decreases, mesicularity decreases to 0%. Hairline fracts filled w smectite, calcite, qtz x-tals.

CORE LOG

BOX # 513 HOLE # 4 Sheet A

Depth range 1496.63 to 1499.53 meters Depth range 4907 to 4916.5 feet

Logger's Name EAI Page ___ of ___

Type of Sample: Flow ___ Intrusive 1,2 Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)	✓	✓				
Aphyric	✓					
Vesicles: %	-	-				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%		✓				
Phenos						
mph		✓				
ol-plag						
Comments						

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic		✓				
Diktytaxitic						

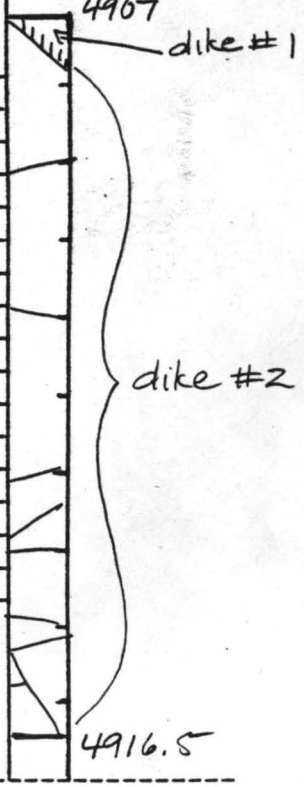
SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, aphyric, aphyric dk gray basalt.

2) dike, aphyric, rare olivine mph (<1%) in a gray matrix which coarsens to dikty thru box. ol. alt. blk. First 50 cm of unit slightly brecciated, fracts are open or filled with qtz x-tals & calcite x-tals.

CORE LOG

BOX # 514 HOLE # 4 Sheet A

Depth range 1499.5 to 1502.4 meters Depth range 4916.5 to 4926 feet

Logger's Name RE Page ___ of ___

Type of Sample: Flow ___ Intrusive 1,2,3 Ash ___ Breccia ✓3

Number of Units in Box 3 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	1%	5%	<1%			
Shape	R	R	R			
Size(x)	4mm	<1mm	<1mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%		1-5%				
<1%	✓		✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments olv ~7 days

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic			✓			
Feldspathic	✓	✓				
Diktytaxitic	✓	✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

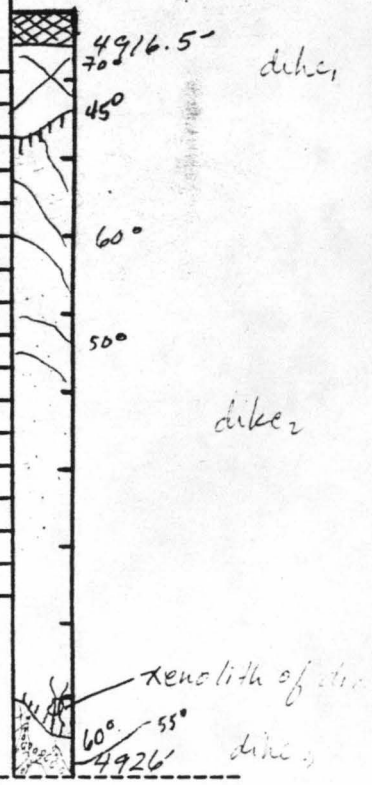
Chlorite ✓

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite		✓
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivene phenos + mph in a light grey fine diktytaxitic matrix. Calcite rhombs in quartz veins.

2) dike2 w/ 1% to 5% olivene phenos + mph in a med. grey fine grading to coarse grading back to fine diktytaxitic matrix. Inclusions (xenoliths) of dike3. Dike2 intrudes dike, & dike2.

3) dike3 w/ <1% olivene phenos + mph in a grey feldspathic matrix. Brecciation of dike2. Dike, and dike2 similar, except for brecciation

CORE LOG

BOX # 515 HOLE # 4 Sheet A

Depth range 1502.43 to 1505.48 meters Depth range 4926 to 4936 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 2 Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %		10				
Shape		R				
Size(x)		5mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%		5				
<1%						
Phenos		✓				
mph		✓				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%	3					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					

Comments ____

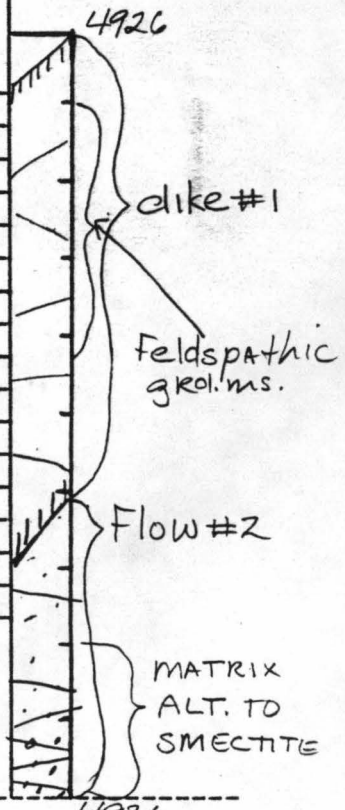
Augite % ____

GROUNDMASS (original)

Aphanitic		?				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite	2	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	2	
Secondary/Alteration		Min.
Smectite	✓	✓
Calcite		
Zeolite		✓
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, avesicular, 3% plag mph, aphanitic near contact grades to feldspathic, 0% phenos in 1st 30 cm, then back to original lith. last 20 cm. Few hair line fracts filled w silica.

2) flow (aa?), 5% olivine phenos ± mph alt iridescent red in a matrix completely altered to red smectite. Vesicles are filled w grn. smectite. First 40 cm of unit are

CORE LOG

BOX # 516 HOLE # 4 Sheet A

Depth range 1505.48 to 1507.92 meters Depth range 4936 to 4944 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	5					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	?					
Feldspathic						
Diktytaxitic						

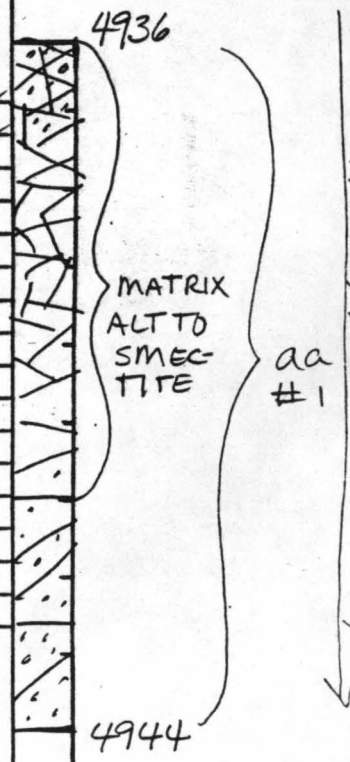
SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ____
- Iddingsite ✓
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		✓
Zeolite		✓
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) flow (aa?), 5% olivine phenos & mph alt iridescent red in a matrix completely altered to red smectite. Vesicles are filled w grn smectite or white zeolite. Matrix alteration decreases last 100 cm of box.

CORE LOG

BOX # 517 HOLE # 4 Sheet A

Depth range 1507.92 to 1510.36 meters Depth range 4944 to 4952 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	20					
Shape	SR					
Size(x)	5mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

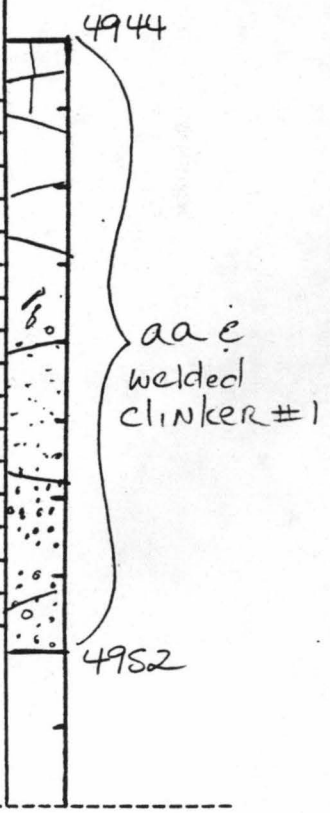
Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

box says 8' but 284cm measured



CRITICAL FEATURES (description of units or features by number)

1) aa ę welded clinker, rare olivine phenos ę mph (1%) olivine alt. iridescent red black in a gray feldspathic matrix

CORE LOG

BOX # 518 HOLE # 4 Sheet A

Depth range 1510.5 to 1513.1 meters Depth range 4952.5 to 4961 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	12%					
Shape	R-SA					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5% 1-3%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → clay

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

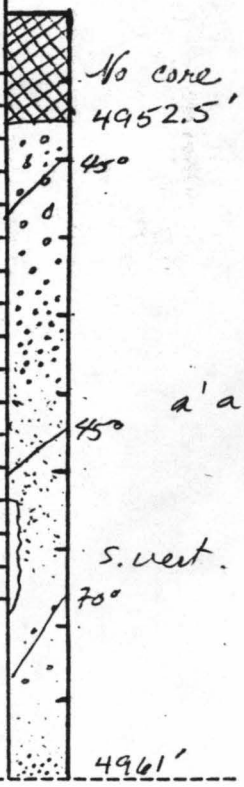
Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

8.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) a'a, w/ 1-3% olivene phenos + mph in a light grey fine to coarse diktytaxitic matrix.

CORE LOG

BOX # 519 HOLE # 4 Sheet A

Depth range 1513.10 to 1516.15 meters Depth range 4961 to 4971 feet

Logger's Name EM Page 1 of 2

Type of Sample: Flow 1 Intrusive 2 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	25	—				
Shape	SR					
Size(x)/mm						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓	✓				
Phenos						
mph	✓	✓				
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

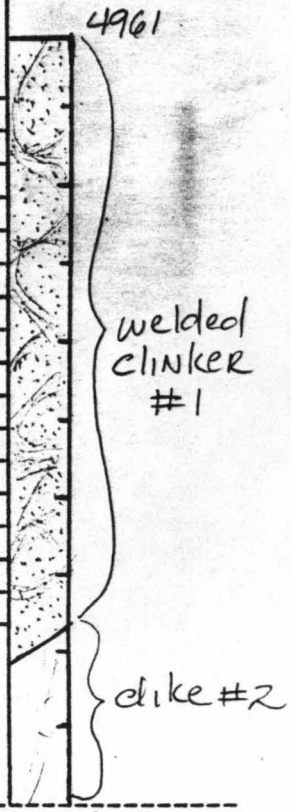
Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

bot says 10' but 276 cm measured



CRITICAL FEATURES (description of units or features by number)

1) welded aa clinker, rare olivine mph (<1%), ol alt blk. in a gray matrix, last 164cm of unit thermally altered to dark red gray.

2) dike, avesicular, rare olivine mph (<1%) ol alt black in a gray matrix. Unit shows hairline fracts trending 60° most filled w smectite, few w qtz ± talc.

CORE LOG

BOX # 520 HOLE # 4 Sheet A

Depth range 1516.2 to 1518.9 meters Depth range 4971 to 4980 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments HW-7 day

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

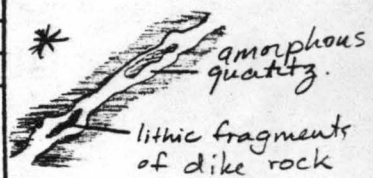
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

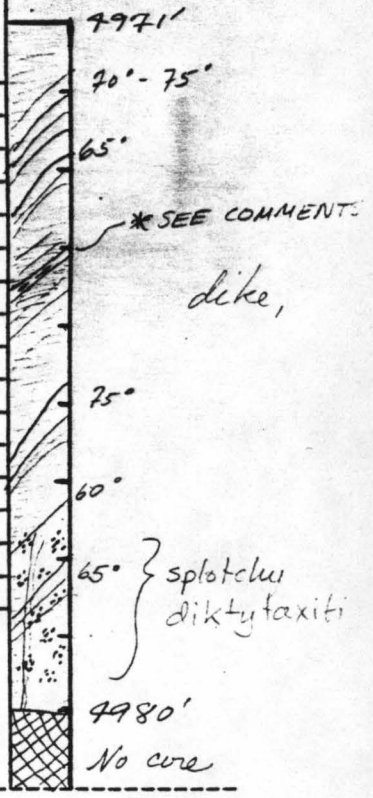
Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Min.		
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box.





CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivene phenos + mph in a dark grey dominantly feldspathic matrix which grades into a splotchy diktytaxitic/feldspathic matrix. Quarty veins in some fractures.

CORE LOG

BOX # 521 HOLE # 4 Sheet A

Depth range 1518.9 to 1524.6 meters Depth range 4980 to 4989 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 2 Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	<1%	25%				
Shape	R	R-SA				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓	✓				
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments Olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓	✓				
Diktytaxitic	✓					

SECONDARY FEATURES

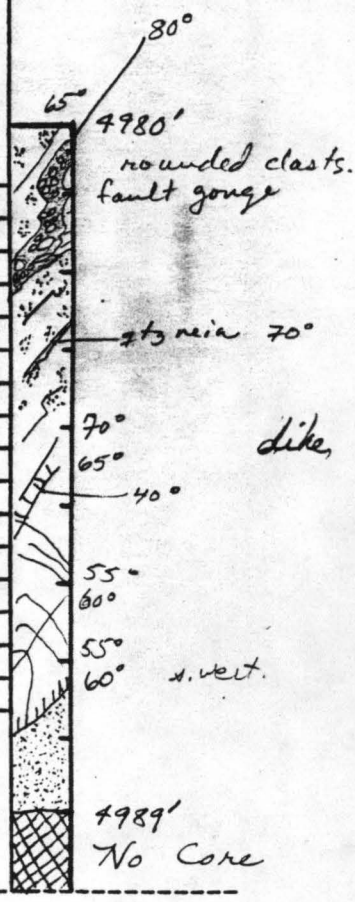
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration Min	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivene phenos + mph in a dark grey, dominantly feldspathic matrix with splotchy dikty taxitic texture in the upper unit. fault gouge wedge in the upper 2', rounded clasts of dike, suspended in darker fine grained feldspathic gouge matrix. The dike, : gouge : dike, boundaries undulate.

3) transitional flow unit w/ <1% olivene phenos + mph in a light grey feldspathic. The vesicles are filled w/ smectite, olivene breaks down

CORE LOG

BOX # 522 HOLE # 4 Sheet A

Depth range 1521.64 to 1524.9 meters Depth range 4989 to 4998 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1,2 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)		—				
micro(<.5 mm)	✓	—				
Aphyric		✓				
Vesicles: %	—	—				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos						
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓	✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

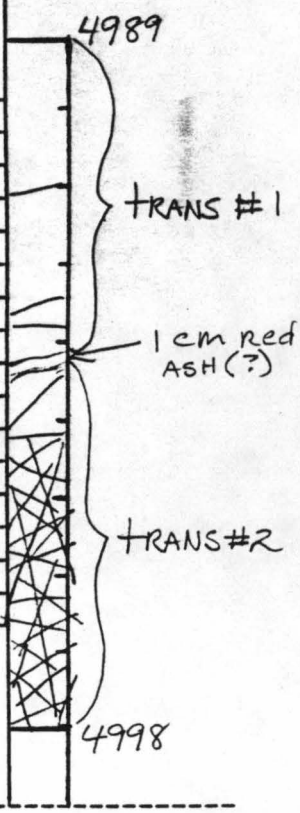
Chlorite ____

Smectite 2

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		Min. ✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		/
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, rare olivine mph (<1%) olivine alt blk. in a gray dikty matrix. Dikty text filled w smectite; avesicular except for one lg. vug.

2) transitional, unit groundmass is highly altered to red smectite and fractured to rubble. Unit may be amesicular trans flow as above or highly indurated, altered ash. No visible phenos. First 28cm red, grades to grn thru bot. Contact btwn unaltered unit #1 and altered unit 2 distinct

CORE LOG

BOX # 523 HOLE # 4 Sheet A

Depth range 1524.39 to 1526.98 meters Depth range 4998 to 5006.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

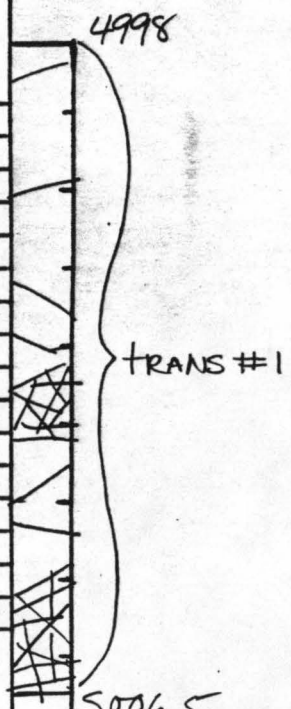
Groundmass

Chlorite ____

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, groundmass is highly altered to reddish black smectite with out visible phenos or filled vesicles

CORE LOG

BOX # 524 HOLE # 4 Sheet A

Depth range 1527.0 to 1529.6 meters Depth range 5006.5 to 5015 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	?					
Vesicles: %	20%					
Shape	R-SA					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

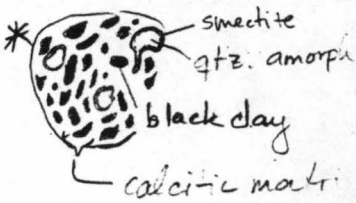
Chlorite

Smectite ✓

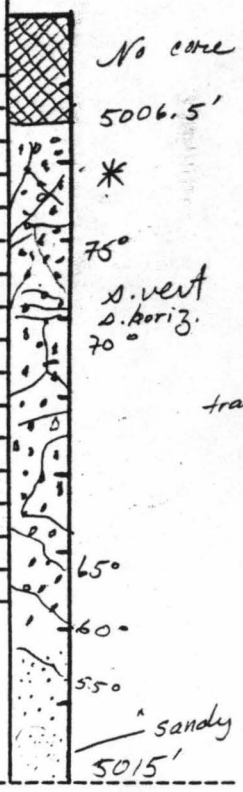
Secondary/Alteration	Fracture Fill	Vesicle Fill
Min		
Smectite		✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

8.5' core in box



FILLED VESICLE



CRITICAL FEATURES (description of units or features by number)

1) transitional, flow unit, highly altered, vesicles are filled w/ black clay, or smectite-calcite, no visible phenos, matrix (aphanitic) is altered to smectite + calcite. Grades down into a diktytaxitic matrix only moderately altered and then 4" of green sandy gruss.

Vesicles filled with black smectite, amorphous silica and amorphous calcite. Hairline fractures common. RE.

CORE LOG

BOX # 525 HOLE # 4 Sheet A

Depth range 1529.57 to 1532.62 meters Depth range 5015 to 5025 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite	%					

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ____
- Iddingsite ____
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite ✓ XRD

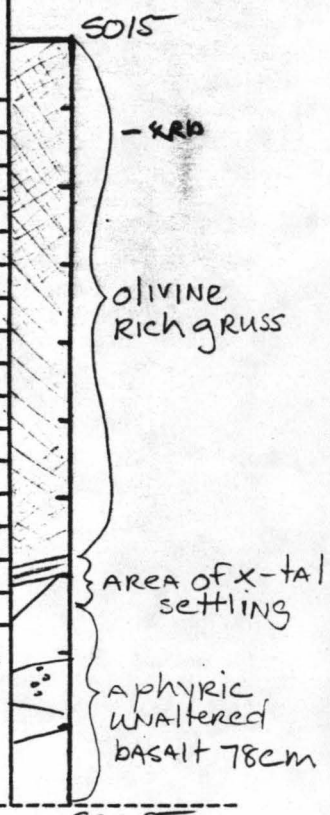
Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica	✓	
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5016.33': "chlorite or serpentine" = smectite + albite (plag). RE 12/12/91

COMMENTS

hairline fracts filled w x-talline qtz

Unit #1



CRITICAL FEATURES (description of units or features by number)

1) transitional, aresicular, 1st 207 cm of unit completely altered to sandy smectite gruss, olivine phenos & mph (10%) show all stages of alteration from unaltered to blk clay. Altered zone ends abruptly, competent region of unit shows 20cm of x-tal settling, then 78cm aphyric unaltered dikty. gray basalt.

Hairline fractures filled with smectite and crystalline qtz sparse. RE.

CORE LOG

BOX # 526 HOLE # 4 Sheet A

Depth range 1532.6 to 1535.7 meters Depth range 5025 to 5035 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 2 Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	/	✓				
micro(<.5 mm)	/	✓				
Aphyric						
Vesicles: %	—	3-5%				
Shape		R-SR				
Size(x)		1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%		40%				
1-5%	/					
<1%	/					
Phenos	/	✓				
mph	/	✓				
ol-plag						

Comments olv → clay, 2: olv → iddingsite, clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓	?				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

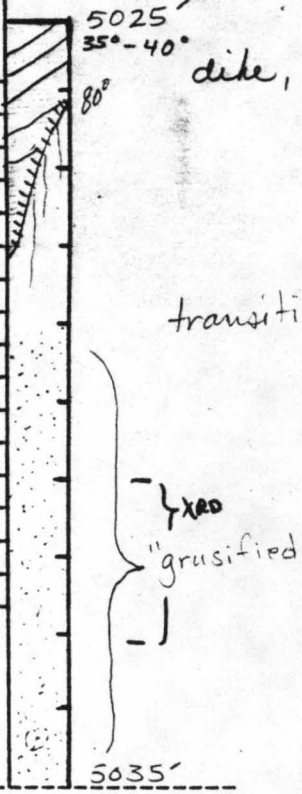
Groundmass
- Chlorite
- Smectite ✓
- Limonite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		Min ✓
Calcite		½
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		½
Chalcedony		
Crystals	✓1	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5031-33': "quartz + smectite" = clay - saponite, vermiculite, m/chl.

RG 8/12 19

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, <1% olivene (olv → clay) phenos + mph in an avesicular, grey aphanitic matrix. Hairline fractures lined with quartz common. XE

2) Highly altered "grusified" flowunit, transitional, picrite w/ 40% olivine phenos + mph in a formerly aphanitic (?) matrix, which now consists of smectite, amorphous silica & calcite. ^unaltered Olivene phenos are common, w/ ~50% altering to iddingsite. Rare hairline fracture along upper contact is mineralized with smectite, calcite, and amorphous silica, XE.

CORE LOG

BOX # 527 HOLE # 4 Sheet A

Depth range 1535.67 to 1538.72 meters Depth range 5035 to 5045 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	R					
Size(x)	3mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic	?					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

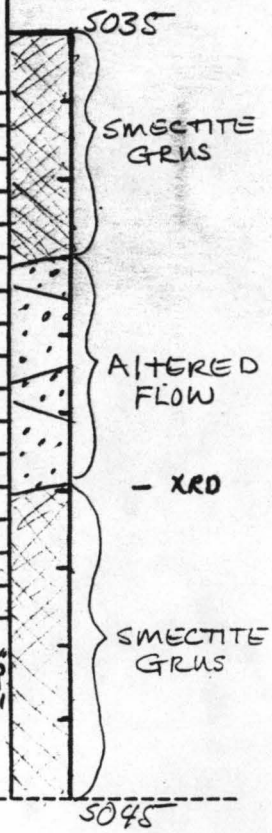
Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		Min. ✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5041': gm picritic basalt "chl/serp" = smectite + albite, augite RG 12/12/91

COMMENTS

UNIT #1



CRITICAL FEATURES (description of units or features by number)

1) transitional, vesicles filled with grn smectite & amor qtz., olivine phenos & mph (10%), olivine shows all stages of alteration, matrix is completely altered to gray green smectite grns.

CORE LOG

BOX # 528 73 HOLE # 4 Sheet A

Depth range 1538 47 to 1541 47 meters Depth range 5045 to 5054 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble 1 Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric	✓					
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	5					
Shape	SR					
Size(x)	3					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-40					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ✓ XRD

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		✓
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		✓
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5046.25' + gm. "chlorite or serpentine" = smectite+albite, augite. RE 12/12/91

COMMENTS

only 9'

CRITICAL FEATURES (description of units or features by number)

1) Transitional Flow w/ 10-40% olivine as phenocrysts, microphenocrysts in a matrix that is totally altered to clays, smectite. There are 2 places where the matrix is almost pristine + primary

2° Minerals: Qtz, clay (altered ol), SMECTITE, WHITE FIBEROUS ZEOL

CORE LOG

BOX # 529 HOLE # 4 Sheet A

Depth range 1541.47 to 1544.21 meters Depth range 5054 to 5063 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	20					
Shape	SR					
Size(x)	/mm					

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							

Comments ____

Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							

Comments ____

Augite	%						

GROUNDMASS (original)

Aphanitic	?						
Feldspathic							
Diktytaxitic							

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

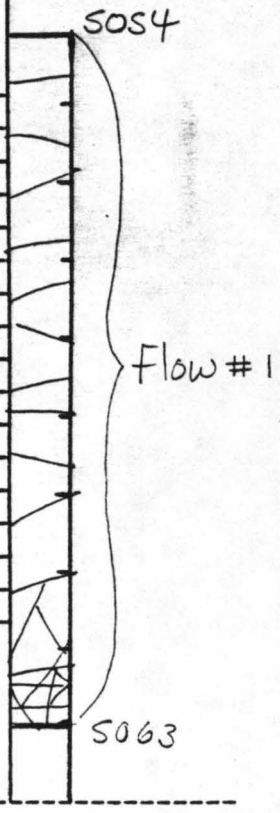
Groundmass

Chlorite ____

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, olivine phenos & mph (10%) olivine alt blk in a purplish gray matrix alt to smectite. Unit has vesicular areas lined w qtz and filled w blk smectite.

CORE LOG

BOX # 530 HOLE # 4 Sheet A

Depth range 1544.22 to 1546.96 meters Depth range 5063 to 5072 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1,2 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓	✓				
mega (>.5 mm)	✓	✓				
micro(<.5 mm)						
Aphyric						
Vesicles: %	20	15				
Shape	SR	SR-SA				
Size(x)	<1	1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓	✓				
1-5%	3-5	3-5				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration	Min.	
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		✓
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' of Core

CRITICAL FEATURES (description of units or features by number)

1) phh w/ 3-5% olivine as phenocrysts, microphenocrysts in a dark gray altered matrix.

2) phh w/ 3-5% olivine as phenocrysts, microphenocrysts in a dark gray altered matrix

2° Minerals: Smectite; Pyrite, Analcime

CORE LOG

BOX # 531 HOLE # 4 Sheet A

Depth range 1546.96 to 1549.4 meters Depth range 5072 to 5080 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,5 Intrusive 2,3,4 Ash ____ Breccia 4

Number of Units in Box 5 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓		✓	✓	✓	
micro(<.5 mm)	✓		✓	✓	✓	
Aphyric		✓				
Vesicles: %	3%	<1%	3%	1%	~7%	
Shape	SR-SA	S	S	S	R-A	
Size(x)	1mm	<1mm	<1mm	<1mm	1mm	

PHENOCRYSTS(Original mineralogy)

Olivine >5%					15%	
1-5%	1%		✓	✓		
<1%					✓	
Phenos	✓		✓	✓	✓	
mph	✓		✓	✓	✓	
ol-plag						

Comments olv → clay, iddingsite

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓	✓
Feldspathic					
Diktytaxitic					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓

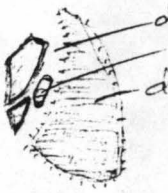
Secondary/Alteration	Fracture Fill	Vesicle Fill (Min.)
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony	✓	
Crystals	✓	
Pyrite	✓	✓
Epidote		
Gypsum		
Anhydrite		

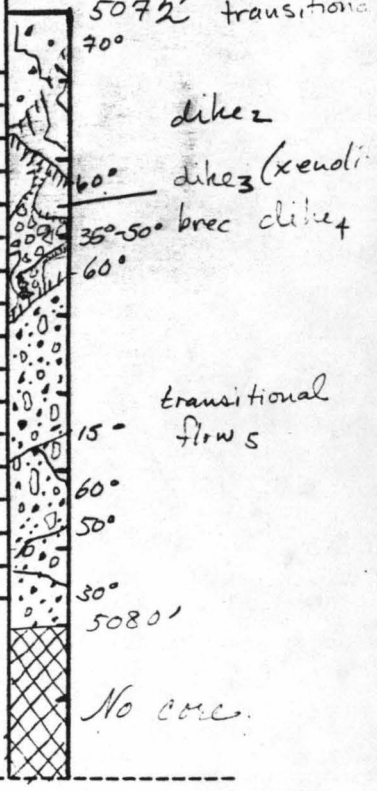
Other(describe)

white-grey fibrous fan-shaped mineral w/ ~negative~ r, Hr 4-5 - PECTOLITE $NaCa_2Si_3O(OH)$

COMMENTS

8' core in box





CRITICAL FEATURES (description of units or features by number)

1) transitional, flow w/ 1% olivene (altered to clay + iddingsite) phenos + mph in a dark blue-gray aphanitic matrix (altering to smectite).

2) dike 2 aphyric in a light grey aphanitic matrix.

3) dike 3 (as angular xenoliths in dike 4) w/ <1% olivene phenos + mph in a light blue-grey aphanitic matrix.

4) dike 4 w/ <1% olivene phenos + mph in a med. grey microvesicular aphanitic matrix. Brecciated with quenched glass as angular clasts, and vugs w/ smectite, quartz xstls, and calcite rhombs in the vugs.

⇨ P.T.O.

CORE LOG

BOX # 532 HOLE # 4 Sheet A

Depth range 1549.40 to 1552.14 meters Depth range 5080 to 5089 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1,4 Intrusive 2,3 Ash ____ Breccia ____

Number of Units in Box ____ Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓			✓		
micro(<.5 mm)	✓			✓		
Aphyric						
Vesicles: %	20	—	—	20		
Shape	SR			SR		
Size(x)	3mm			3mm		

PHENOCRYSTS(Original mineralogy)

Olivine >5%	16	—	—	10		
1-5%						
<1%						
Phenos	✓			✓		
mph	✓			✓		
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	?	✓	✓	?		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay 1,4
- Iddingsite ____
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite 1,4

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		1,4
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) transitional, olivine phenos & mph (10%) olivine alt. blk. in a purplish gray matrix alt to smectite

2) dike, amsicular, aphyric gray basalt

3) dike, lith as above

4) transitional, lith as above, last 30cm of unit altered to smectite grus

CORE LOG

BOX # 533 HOLE # 4 Sheet A

Depth range 1552 15 to 1555 20 meters Depth range 5089 to 5099 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	?					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	5-15					
	1-5%						
	<1%						
Phenos	✓						
mph	✓						
ol-plag							

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite	%					

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

10' Core

CRITICAL FEATURES (description of units or features by number)

1) Green Sand, Box (core) Consists of altered Core w/ Sand sized fragments. 5-15% olivine as phenocrysts, microphenocrysts in an altered matrix.

2° MINERALS: SMECTITE

CORE LOG

BOX # 534 HOLE # 4 Sheet A

Depth range 1555.20 to 1558.25 meters Depth range 5099 to 5109 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1,3,4 Intrusive 2 Ash ____ Breccia ____

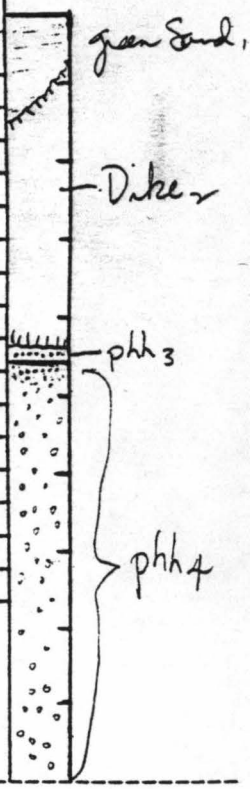
Number of Units in Box 4 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓		✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %	ϕ	<1	15	15		
Shape		R	SR-A	SR-SA		
Size(x)		<1	<1	<1		
PHENOCRYSTS(Original mineralogy)						
Olivine >5%	✓5-10			10		
1-5%		✓3	✓3			
<1%						
Phenos	✓	✓		✓		
mph	✓	✓	✓	✓		
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %.						
GROUNDMASS (original)						
Aphanitic	✓					
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements	✓	
Olv -> Clay	2,4	✓
Iddingsite	2,4	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	1,3,4	
Secondary/Alteration		Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) Green Sand w/ 5-10% olivine as phenocrysts, microphenocrysts in a Sandy altered matr

2) Dike w/ 3% olivine as phenocrysts, microphenocrysts in a diktytaxitic matrix
The center of the Like is more ol-rich than the margins.

3) phh Unit Thin w/ 3% olivine as microphenocrysts in a gray matrix.
Olivine Still in Pristine condition

4) phh Unit w/ 10% olivine as phenocrysts, microphenocrysts in a lt gray altered mat

CORE LOG

BOX # 535 HOLE # 4 Sheet A

Depth range 1558.24 to 1560.68 meters Depth range 5109 to 5117 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

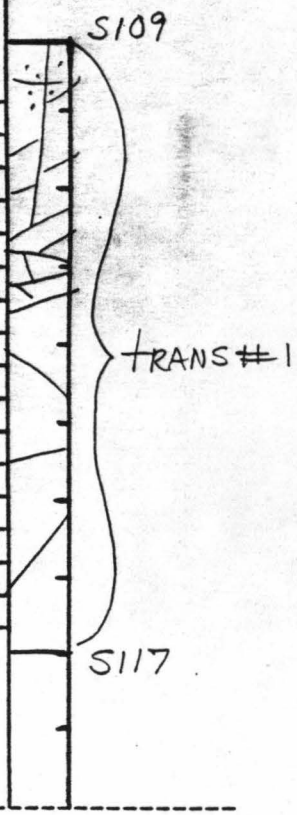
Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

sparse (5%) vesicles filled w qtz top 30cm of bbt

sparse hairline fracts filled w smectite



CRITICAL FEATURES (description of units or features by number)

1) transitional, very sparse vesicles filled w qtz, olivine phenos & mph (10%) olivine altered reddish black, in a gray matrix altered to smectite.

CORE LOG

BOX # 536 HOLE # 4 Sheet A

Depth range 1560.68 to 1563.12 meters Depth range 5117 to 5125 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

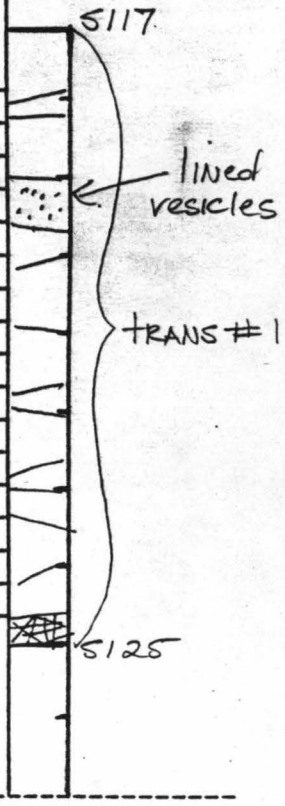
Groundmass

Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		Min ✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, sparsely vesicular (5%) vesicles lined w smectite, olivine phenos & mph (10%) olivine altered black or brick red in a gray matrix alt. to smectite.

CORE LOG

BOX # 537 HOLE # 4 Sheet A

Depth range 1563 to 1566 meters Depth range 5125 to 5134.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,2,3 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓		✓			
micro(<.5 mm)	✓		✓			
Aphyric		✓				
Vesicles: %	7%	5%	15%			
Shape	R-SA	R-SR	SR-SA			
Size(x)	1mm	2mm	1.5mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15%		20%			
1-5%						
<1%						
Phenos	✓		✓			
mph	✓		✓			
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic			✓			
Diktytaxitic		✓				

SECONDARY FEATURES

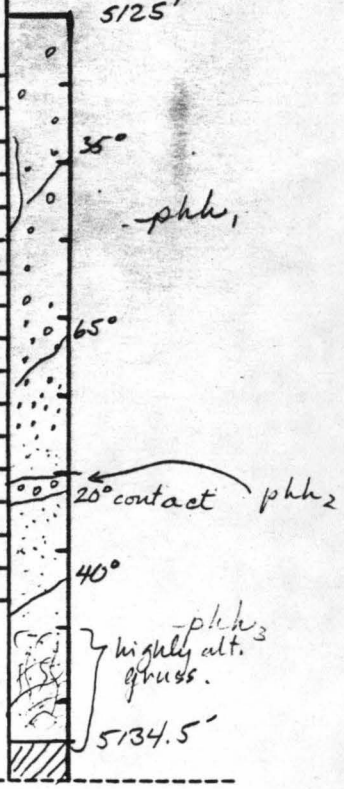
Phenocryst replacements
- Olv -> Clay ____
- Iddingsite ✓
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	Min ✓
Calcite		
Zeolite		?
white fiberous		
green		
blue		
Analcime	/	2 vugs
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) phh_1 moderately altered phenocrysts + groundmass, picritic, 15% olivene phenos + mph (→ iddingsite + clay) in a dark grey-blue aphanitic matrix. Vesicles filled w/ smectite, quarty and zeolite?

2) phh_2 unaltered, aphyric, vesicles filled w/ analcime, in a light grey dikty taxitic matrix.

3) phh_3 moderately to strongly altered, picritic flow, 20% olivene phenos

CORE LOG

BOX # 538 HOLE # 4 Sheet A

Depth range 1566.02 to 1568.79 meters Depth range 5134.5 to 5143.5 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow 1 Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10					
	1-5%						
	<1%						
Phenos							
mph							
ol-plag							

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite	%					

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	?					

SECONDARY FEATURES

Phenocryst replacements

- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

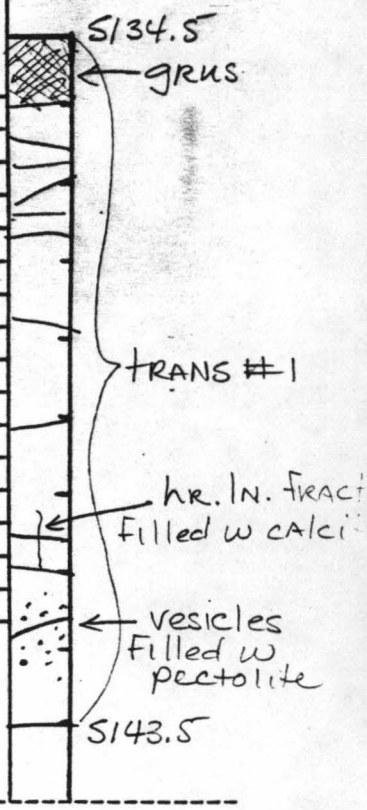
Groundmass

- Chlorite
- Smectite ✓

Secondary/Alteration	Min.	Fracture Fill	Vesicle Fill
Smectite		✓	
Calcite		✓	
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous			
Chalcedony			
Crystals			
Pyrite			
Epidote			
Gypsum			
Anhydrite			

Other(describe) vesicles filled w pectolite

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, area of vesiculation near bottom of box, olivine phenos & mph (10%) olivine alt black a brick red, in a gray matrix alt to smectite.

CORE LOG

BOX # 539 1568.77 to 1571.36 meters HOLE # 4 Sheet A

Depth range 5143.5 to 5152 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box 2 Clk/Rubble ✓ Carbonate____

Fill in blanks below by using the appropriate unit number.

COMMENTS: Only 8.5' here

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	15	20				
Shape	~~SL-SP~~	~~SL-SP~~				
Size(x)	1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓10	✓7	15			
1-5%						
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						
Comments						
Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite 1

Plag -> Clay____

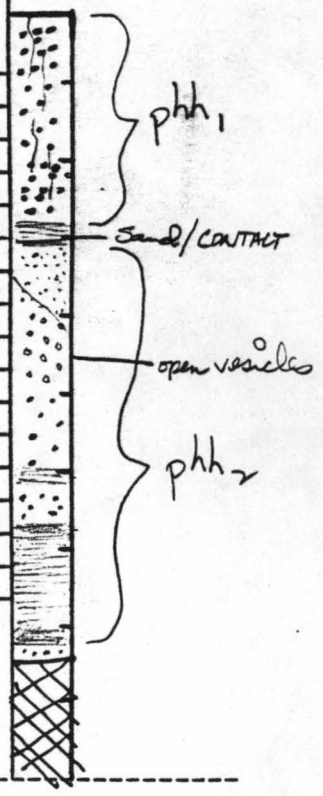
Zeolite____

Groundmass

Chlorite____

Smectite____

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime	✓	✓
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony	✓	
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		
CHABAZITE	✓	



CRITICAL FEATURES (description of units or features by number)

1) phh unit w/ 10% olivine phenocrysts, microphenocrysts (altered) in an aphanitic matrix.

2) phh unit w/ 7% olivine phenocrysts, microphenocrysts (altered) in an aphanitic matrix. Crystal settling apparent.

2° MINERALS ō SMECTITE, Iddingsite + Clay from olivine, Analcime, Calcite, Chabazite

QTZ

CORE LOG

BOX # 540 HOLE # 4 Sheet A

Depth range 1571.36 to 1574.26 meters Depth range 5152 to 5161.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	?					

SECONDARY FEATURES

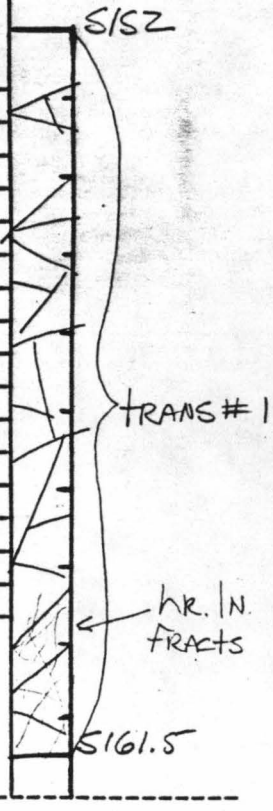
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

pectolite in vesicles

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, isolated areas of vesiculation filled w pectolite(?), olivine phenos & micro phenos (10%) olivine altered black or brick red, in a dk to lt. gray matrix altered to smectite. Last 20% of box shows hairline fracts filled w blk smectite

CORE LOG

BOX # 541 HOLE # 4 Sheet A

Depth range 1574.1 to 1576.9 meters Depth range 5161' to 5170' feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	3-5%					
Shape	R-SA					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → idd, clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite	%					

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box

gussified

highly fractu

phh,

CRITICAL FEATURES (description of units or features by number)

1) phh, w/ 15% olivine phenos + mph (altering → idd) in a grey aphanitic matrix. Moderately altered.

CORE LOG

BOX # 542 HOLE # 4 Sheet A

Depth range 1576.85 to 1579.75 meters Depth range 5170 to 5179.5 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 2 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	15	20				
Shape	SR-SA	SR				
Size(x)	3	1				

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	15✓	15✓				
	1-5%						
	<1%						
Phenos		✓	✓				
mph		✓	✓				
ol-plag							

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1, 2

Iddingsite 1, 2

Plag -> Clay ____

Zeolite ____

Groundmass

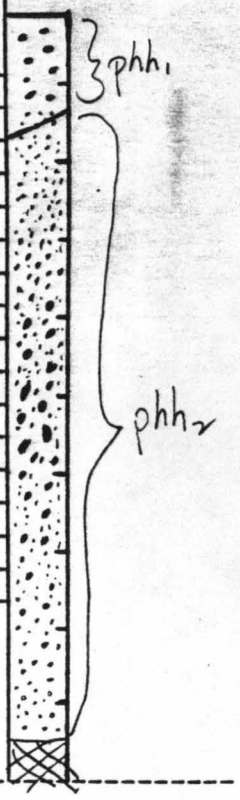
Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		✓
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' loss



CRITICAL FEATURES (description of units or features by number)

1) phh flow w/ 15% olivine as phenocrysts, microphenocrysts (altered) in an altered aphanitic matrix.

2) phh flow w/ 15% olivine as phenocrysts, microphenocrysts (altered) in feldspathic matrix

2° minerals: Smectite, Analcime, Qtz-A, Clay + Iddingsite (Altered olv)

7.1990

CORE LOG

BOX # 543 HOLE # 4 Sheet A

Depth range 1579.7 to 1582.5 meters Depth range 5179.5 to 5188.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,2 Intrusive 3 Ash ____ Breccia 2 ~semi

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						

Vesicles: %	2%	5%	<1%			
Shape	R-SA	R-SA	R			
Size(x)	1mm	<1mm	<1mm			

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%	7-10					
1-5%		3-5%	✓			
<1%						
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments olv → idd, clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓	✓			
Feldspathic	✓	✓				
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

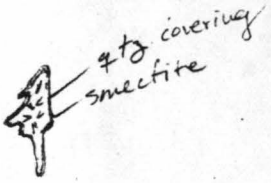
Chlorite ____

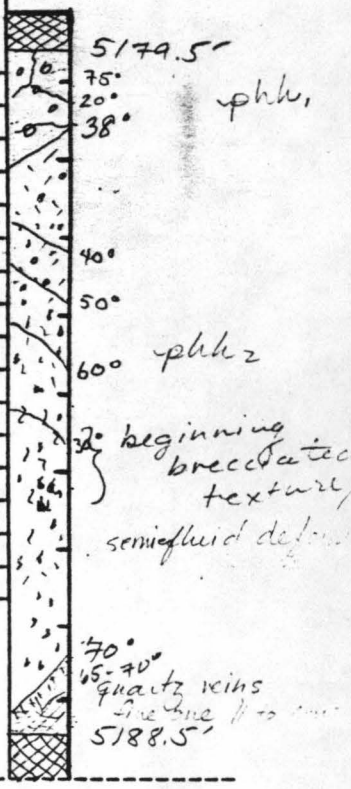
Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		✓
Chabazite		
MgOH		
Silica		
Amorphous	✓	✓
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box





CRITICAL FEATURES (description of units or features by number)

1) phh1 moderately altered, w/ 7% olivine (→ idd clay) phenos + mph in a dark grey feldspathic matrix (→ smectite)

2) phh2 w/ 3-5% olivine phenos + mph (→ idd + clay) in a light grey microcrystalline feldspathic matrix. This unit in its lower half is distorted, the vesicles especially (blades —), a semi-fluid deform with sub-rounded clasts.

3) dike3 w/ <1% olivine phenos + mph in a dark grey aphanitic matrix thin-line fractures filled w/ amorph. silica parallel to the contact

CORE LOG

BOX # 544 HOLE # 4 Sheet A

Depth range 1582.49 to 1585.08 meters Depth range 5188.5 to 5197 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow ____ Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							
Comments							
Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							
Comments							
Augite	%						

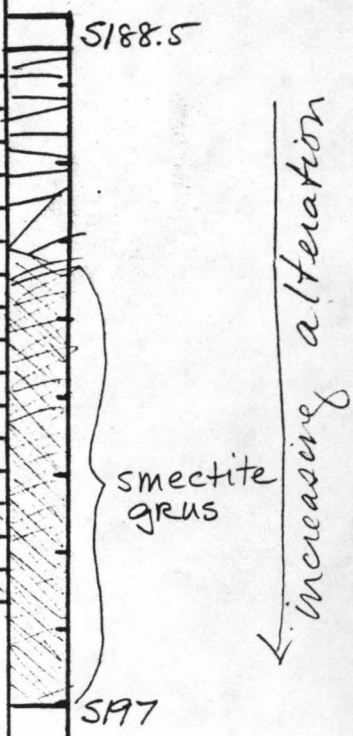
GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration		Min.
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

Dike #1



CRITICAL FEATURES (description of units or features by number)

1) dike, avesicular, unit begins as aphyric, diktytaxitic lt. gray basalt, olivine % increases to 10% phenos & mph, unaltered to completely altered to blk clay. alteration of matrix increases to completely altered smectite grus.

CORE LOG

BOX # 545 HOLE # 4 Sheet A

Depth range 1585.08 to 1587.52 meters Depth range 5197 to 5205 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							
Comments							
Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							
Comments							
Augite	%						

GROUNDMASS (original)

Aphanitic							
Feldspathic							
Diktytaxitic		?					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓ XRD	
Secondary/Alteration		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5203': "smectite matrix" = albite, augite + trace clay. RE 13/12/91

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, olivine phenos & mph (10%) in a gray dikty(?) matrix almost completely altered to smectite group.

CORE LOG

BOX # 546 HOLE # 4 Sheet A

Depth range 1587.5 to 1589.4 meters Depth range 5205 to 5211 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	1%					
Shape	R					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv -> idd, clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

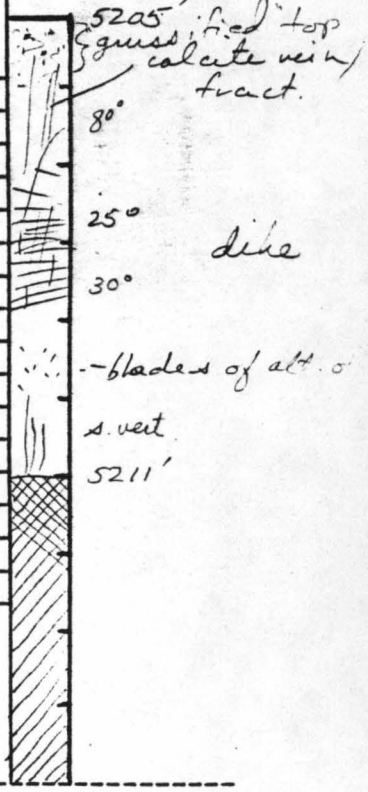
GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

6' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ 10-15% olivine phenos + mph which is in a grussified 'sandy' matrix for the upper foot + this grades into a low concentration of olivine 1% in a competent light gray macrocrystalline feldspathic matrix. Highly fractured.

CORE LOG

BOX # 547 HOLE # 4 Sheet A

Depth range 1589.4 to 1591.8 meters Depth range 5211 to 5219 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 2 Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	5%				
Shape		K-SR				
Size(x)		2mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%		3-7%				
1-5%						
<1%	✓					
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv → clay, idd.

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES

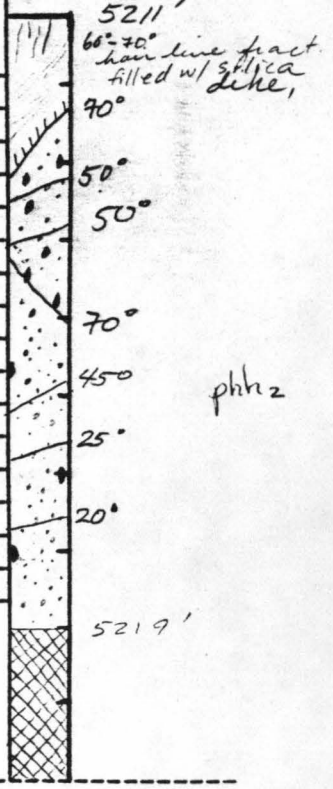
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite	✓	
Zeolite		
LAUMONITE? white fiberous		✓
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

8' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivine phenos + mph in an unaltered dark grey aphanitic matrix.

2) phh2 w/ 3-7% olivine phenos + mph (altering to white eye-like zones) in a med. grey feldspathic matrix.

CORE LOG

BOX # 548 HOLE # 4 Sheet A

Depth range 1591.79 to 1595.07 meters Depth range 5219 to 5229.5 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow / Intrusive ___ Ash ___ Breccia ___

Number of Units in Box / Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	SR					
Size(x)	≤mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag	✓					

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	?					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

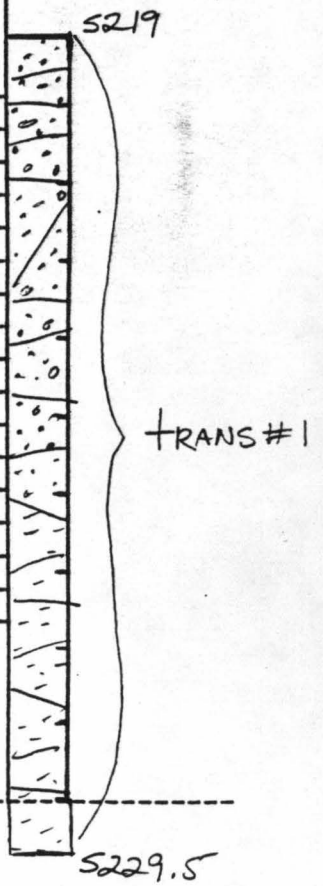
Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

largest vesicles are rimmed w. blk smectite & filled w grn smectite

303 cm measured



CRITICAL FEATURES (description of units or features by number)

1) transitional, vesicles 15% 1st 60% of box decrease to 5% last 40%, also from lg. round to sm. sub angular, all filled w smectite; olivine phenos & mph (15%) thru box, sparse ol-plag intergrowths last 20% of box in a gray matrix alt to smectite

CORE LOG

BOX # 549 HOLE # 4 Sheet A

Depth range 1595 to 1597.59 meters Depth range 5229.5 to 5238 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1,2 Intrusive 3 Ash ____ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	25	15	<1			
Shape	SR-SA	SR-SA	R			
Size(x)	~1	<1	<1			

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓7	✓15				
1-5%						
<1%			✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%			✓			
Rhombs						
Blades/laths			✓			
mph			✓			

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic			✓			
Feldspathic	✓					
Diktytaxitic		✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1,2

Iddingsite 1,2

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

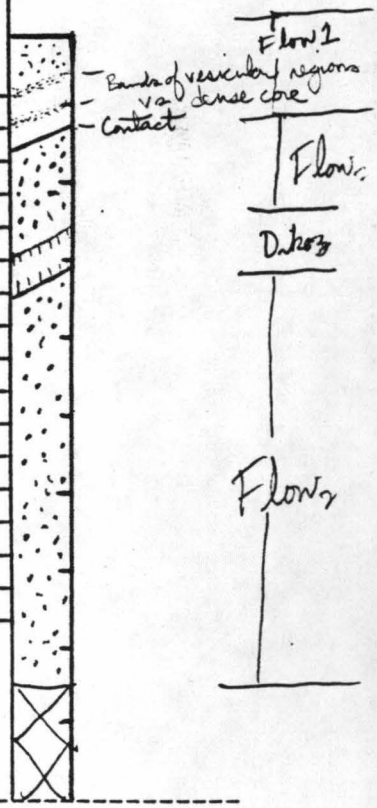
Smectite ____

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

-only 8.5' (259.25) vs 288 measured

Flow is Thermally oxydized



CRITICAL FEATURES (description of units or features by number)

1) phh w/ 7% olivine as phenocrysts, microphenocrysts (altered) in a Feldspathic groundmass

2) phh flow w/ 15% olivine as phenocrysts, microphenocrysts in a diktytaxitic matrix. Portions of the matrix is burgundy color = Thermally oxydized.

3) Dike w/ <1% olivine + Plagioclase as phenocrysts microphenocrysts in an aphanitic matrix.

CORE LOG

BOX # 550 HOLE # 4 Sheet A

Depth range 1597.59 to 1600.64 meters Depth range 5238 to 5248 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow / Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	5					
Shape	SA					
Size(x)	2mm					

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	7					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag		✓					

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite	%					

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

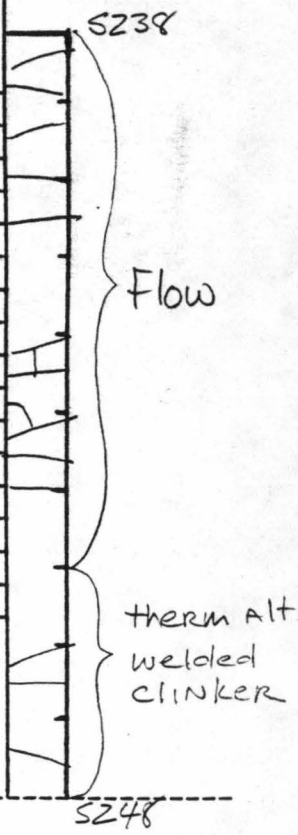
Chlorite ____

Smectite ____

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

TRANS #1



CRITICAL FEATURES (description of units or features by number)

1) transitional flow & welded clinker, sparsely vesicular (5%) olivine phenos & mph, rare ol-plag intergrowths (≤7%) in a gray matrix slightly altered toward smectite. Last 90cm of unit consists of highly indurated welded clinker therm. alt. to dk. red gray.

CORE LOG

BOX # 551 HOLE # 4 Sheet A

Depth range 1600.64 to 1603.39 meters Depth range 5248 to 5257 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

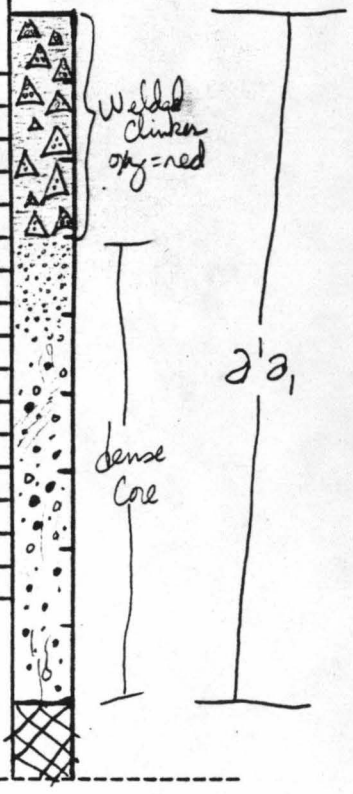
Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓					
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	SLOA					
Size(x)	1					
PHENOCRYSTS(Original mineralogy)						
Olivine >5%	7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						
GROUNDMASS (original)						
Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		Min.
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' of Core Lost



CRITICAL FEATURES (description of units or features by number)

1) a'a flow, proximal w/ 7% olivine as phenocrysts, microphenocrysts (altered) in a diktytaxitic matrix. The a'a clinker is oxydized + welded.

2° MINERALS: SMECTITE, CALCITE, QTZ CRYSTALS

CORE LOG

BOX # 552 HOLE # 4 Sheet A

Depth range 1603.4 to 1605.98 meters Depth range 5257 to 5265.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	3%					
Shape	R-SA					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	7-10%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → idd, white clay, dark clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

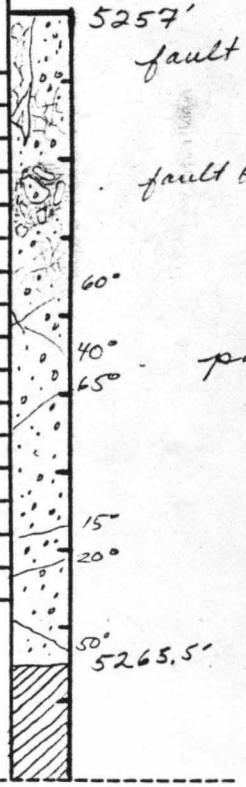
GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration		Min.
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite		✓
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

8.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) phh, w/ 7-10% olivine phenos + mph (altering) in a med. grey microcrystalline feldspathic matrix. Fault gouge + breccia in the upper unit. Hairline fractures common. 2° mins: quartz, smectite, calcite

CORE LOG

BOX # 553 HOLE # 4 Sheet A

Depth range 1605.98 to 1608.87 meters Depth range 5265.5 to 5275 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10					
Shape	SA					
Size(x)	3mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	1					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

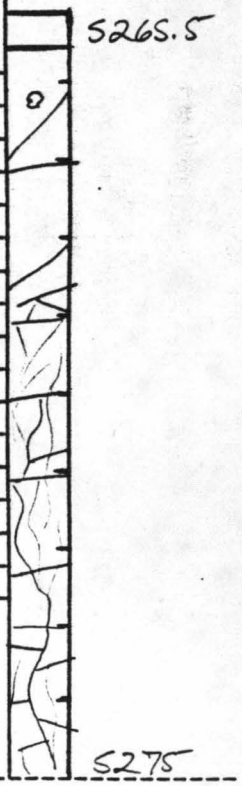
Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	Min.
Smectite	✓	
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) transitional, sparsely vesicular (10%), olivine phenos & mph (7%) olivine unaltered, in a gray matrix. Lg. vugs are lined w qtz x-tals, small ones filled w calcite. Bottom 70% of box shows numerous hair line fracts filled w smectite.

CORE LOG

BOX # 354 HOLE # 4 Sheet A

Depth range 1608.88 to 1611.62 meters Depth range 5275 to 5284 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble 1 Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10					
Shape	SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓ 7-10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1

Iddingsite 1

Plag -> Clay ____

Zeolite ____

Groundmass

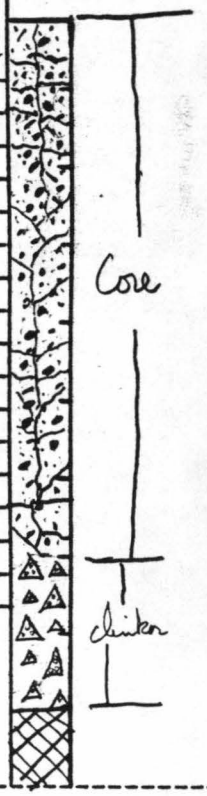
Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min. 1
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

~ 9' of Core



CRITICAL FEATURES (description of units or features by number)

a'a flow w/ 7-10% olivine phenocrysts, microphenocrysts in a lt gray feldspathic matrix. a'a Clinker is present it is fine grained & indurated

2° MINERALS: SMECTITE, CALCITE

CORE LOG

BOX # 555 HOLE # 4 Sheet A

Depth range 1611.6 to 1613.5 meters Depth range 5284 to 5290 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/~~Rubble~~ 1 Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10%					
Shape	S-SR					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → idd, clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

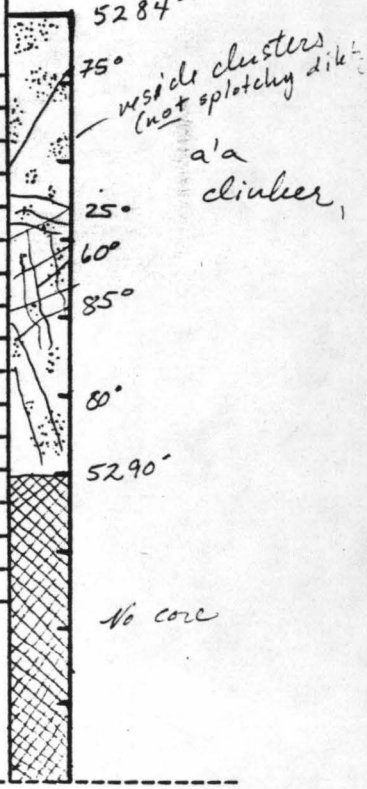
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Min.		
Smectite	✓	✓
Calcite	✓	✓
Zeolite	laumontite	
white fiberous		✓
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

6' core in box
The end of HQ core.



CRITICAL FEATURES (description of units or features by number)

1) a'a clinker, compacted and altered, w/ 1% olivine phenos + mph (→ iddingsite) and patches of vesicles (or more vesicular clasts) in-filled w/ calcite, smectite, and quartz, which leave smooth-walled voids when the amygdale is weathered away. All of this in a dark brown gray (smectitic) feldspathic matrix.

CORE LOG

BOX # 556 HOLE # 4 Sheet A

Depth range 1613.45 to 1620.01 meters Depth range 5290 to 5311.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble 1 Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	R					
Size(x).	5mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3					
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

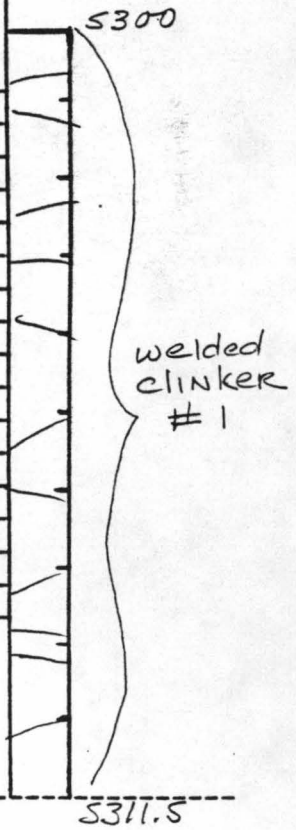
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite	✓	✓
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

start NQ core
10' core loss
5290-5300'



CRITICAL FEATURES (description of units or features by number)

1) welded clinker, microscopic round vesicles filled w smectite (blk), calcite (white), & epidote (?)(green); olivine phenos & mph (3%) olivine alt. blk. in a dense dk gray matrix which has started to alter to smectite.

CORE LOG

BOX # 557 HOLE # 4 Sheet A

Depth range 1620.01 to 1623.51 meters Depth range 5311.5 to 5323 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow ___ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 3 Clk/Rubble 1,3 Carbonate 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	—	✓			
micro(<.5 mm)	✓		✓			
Aphyric						
Vesicles: %		-				
Shape	R					
Size(x)	.5mm		3mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%		—				
1-5%	3		3			
<1%						
Phenos	✓		✓			
mph	✓		✓			
ol-plag						

Comments ___

Plagioclase						
>5%		—				
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)						
Aphanitic	✓	—	✓			
Feldspathic						
Diktytaxitic						

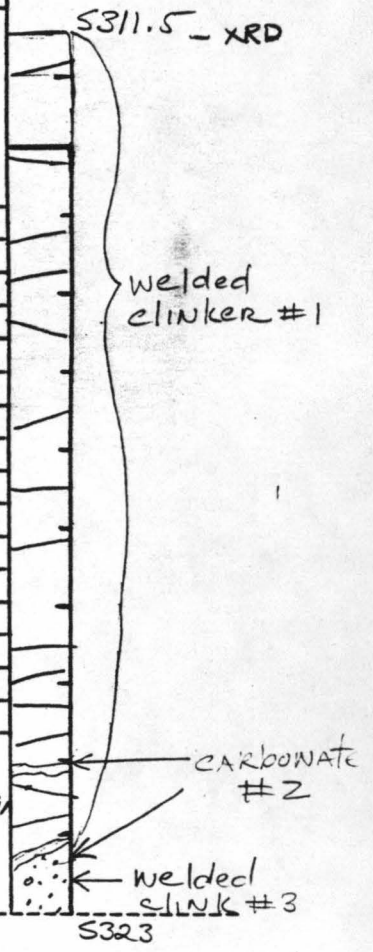
SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	1	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	1 XRD	
Secondary/Alteration	Min.	
Smectite	1	
Calcite		3
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5311.5': "chl/serpentine" = smectite + analcime. RE 18/12/91

COMMENTS

highest carbonate 5321'

box actually contains 10'



CRITICAL FEATURES (description of units or features by number)

1) welded clinker, micro amygdales as in box 556, olivine phenos & mph (3%) ol alt blk in a dense dk gray matrix alt. toward smectite

2) carbonate, beach hash consisting of shell fragm., rex-talluged

3) welded clinker, lith as above, larger vesicles (3mm) & fracts filled w calcite.

CORE LOG

BOX # 558 HOLE # 4 Sheet A

Depth range 1623.5 to 1626.6 meters Depth range 5323 to 5333 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,2,3 Intrusive ____ Ash ____ Breccia 2,3

Number of Units in Box 3 Clk/Rubble 1,2,3 Carbonate 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	10%	5%	5%			
Shape	R-A	R-A	R-A			
Size(x)	1mm	mm	mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3%					
<1%		✓	✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments olv → devitrifying, idd, clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

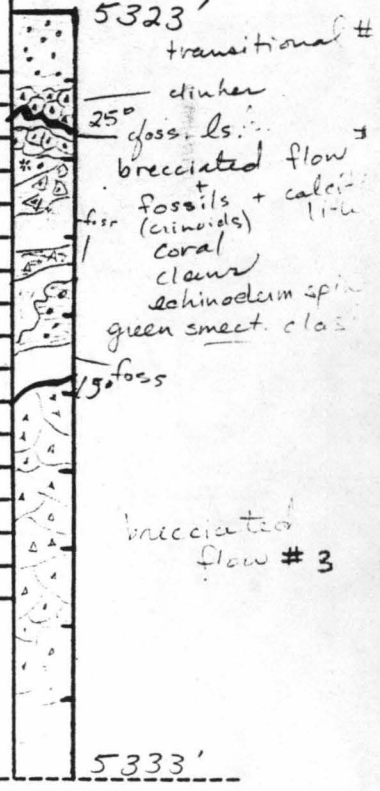
Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite		
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

calcitic mud, very fine grained filling vesicles.

COMMENTS

NQ core



CRITICAL FEATURES (description of units or features by number)

1) transitional flow w/ bottom clinker, containing 3% olivine phenos + mph (devitrified) in a dark grey aphanitic matrix.

2) layered brecciated flow w/ < 1% olivine phenos + mph (alt → idd, clay) w/ dark grey, dark smectitic aphanitic matrix. Layered, fossiliferous calcitic mud & limestone. (coral, echinoderm stems, clams, crinoids)

3) brecciated flow as in 2 above

CORE LOG

BOX # 559 HOLE # 4 Sheet A

Depth range 1626.6 to 1629.6 meters Depth range 5333 to 5343 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,3,6,8 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 8 Clk/Rubble ____ Carbonate 2,4,5,7

Fill in blanks below by using the appropriate unit number.

7 is carb sand

PRIMARY FEATURES	1	2	3	4	5	6	8
Phyric							
mega (>.5 mm)	✓	✓	✓	✓	✓	✓	✓
micro(<.5 mm)	✓	✓	✓	✓	✓	✓	✓
Aphyric							
Vesicles: %	5%	5%	20%	7%	5%	10%	7%
Shape	S-SR	S-SR	S-R	SR-A	SR-A	S-SA	SR-A
Size(x)	<1mm	<1mm	<1mm	<1mm	<1mm	<1mm	<1mm

PHENOCRYSTS (Original mineralogy)

Olivine	>5%							3%
	1-5%							
	<1%	✓	✓	✓	✓	✓	✓	
Phenos		✓	✓	✓	✓	✓	✓	✓
mph		✓	✓	✓	✓	✓	✓	✓
ol-plag								

Comments olv → clay + idd

Plagioclase						
	>5%					
	1-5%					
	<1%					
Rhombs						
Blades/laths						
mph						
Comments						
Augite	%					

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓	✓	✓	✓
Feldspathic							
Diktytaxitic							

SECONDARY FEATURES

Phenocryst replacements

Olv → Clay ✓

Iddingsite ✓

Plag → Clay

Zeolite

Groundmass

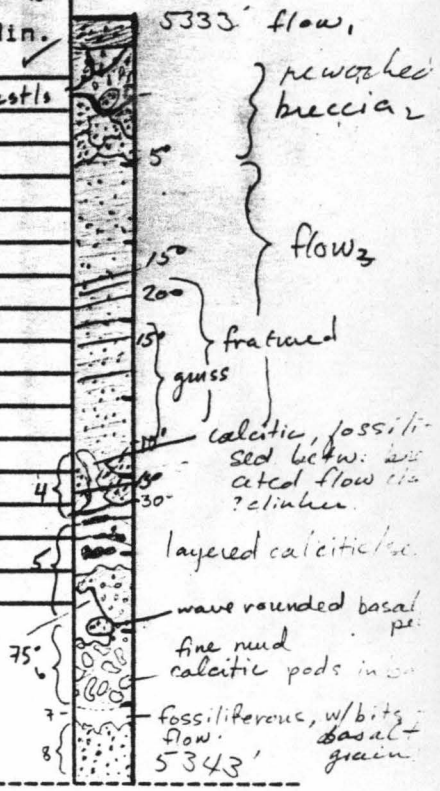
Chlorite

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min. ✓
Smectite	✓	
Calcite		vstls
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

10' core in 6 box



CRITICAL FEATURES (description of units or features by number)

1) flow, unit (phh?) containing <1% olivene phenos + mph (altering to clay + idd) in a dark grey aphanitic matrix.

2) Partially reworked "conglomerate" breccia, deposited w/ rounded cobble + calcitic clasts + flow clasts, and 1-2mm diam. flow clasts.

3) flow$_3$ unit (phh?)

Starts out as competent flow (phh?) w/ <1% olivene phenos + mph in a dark grey aphanitic matrix and breaks down via increasing fracture density into a "grussy" crumbly

CORE LOG

BOX # 560 HOLE # 4 Sheet A

Depth range 1629.61 to 1632.21 meters Depth range 5343 to 5351.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 4 Intrusive 2 Ash ____ Breccia ____

Number of Units in Box 4 Clk/Rubble ____ Carbonate 3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)		-	—	✓		
micro(<.5 mm)	✓	✓		✓		
Aphyric		✓	✓			
Vesicles: %	30					
Shape	SR					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%				10		
1-5%	5					
<1%						
Phenos				✓		
mph	✓			✓		
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths						
mph		✓				

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic	?	✓	—	?		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite 4

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite 4,4

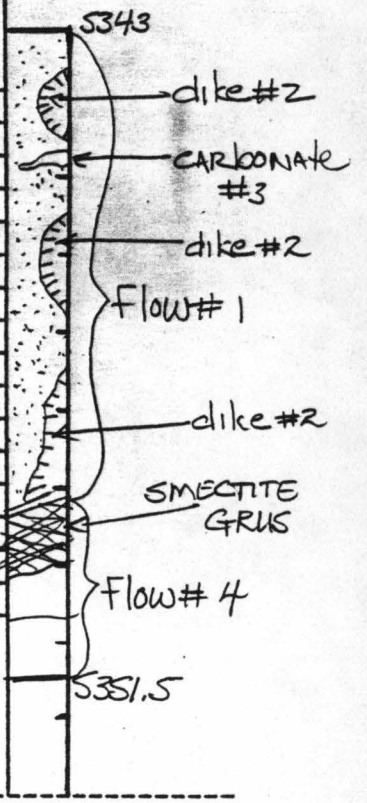
Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	√3	
Epidote		
Gypsum		
Anhydrite		4?

Other(describe)

COMMENTS

all units highly fractured except for last 55cm of bot

flow units highly altered to smectite



CRITICAL FEATURES (description of units or features by number)

1) flow(phh?), 5% olivine mph alt to smectite, vesicle voids(?) filled w smectite in a dk gray green matrix alt to smectite

2) dike, <1% plag mph in a dk gray unaltered basalt matrix

3) carbonate, 1cm finger no visible fossils

4) flow, (welded clinker) 7% olivine phenos & mph in a lt. gray highly altered (smectite) unit which shows discreet areas

CORE LOG

BOX # 561 HOLE # 4 Sheet A

Depth range 1632.2 to 1638.8 meters Depth range 5351.5 to 5360 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow ✓ Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	25					
Shape	SI-SA					
Size(x)	~1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓2-5					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

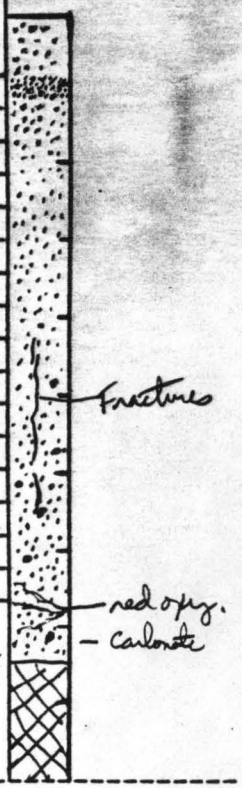
Chlorite ____

Smectite ✓ /

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		
Carbonate	✓	

COMMENTS

only 8.5' of Core



CRITICAL FEATURES (description of units or features by number)

1) phh flow w/ 2-5% olivine as phenocrysts, microphenocrysts in an altered clay matrix

2° minerals include: Smectite, Calcite, Carbonate

CORE LOG

BOX # 562 HOLE # 4 Sheet A

Depth range 1634.80 to 1637.39 meters Depth range 5360 to 5368.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	—				
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15	—				
Shape	R					
Size(x)	5mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	7%					
1-5%						
<1%						
Phenos						
mph						
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	?	—				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

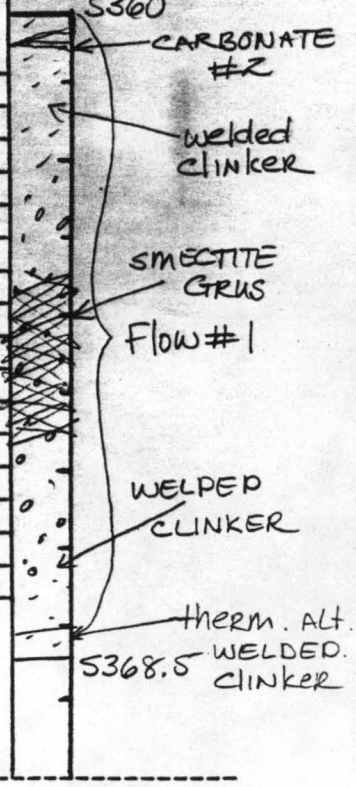
Chlorite ____

Smectite /

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		2(?)
Other(describe)		

COMMENTS

lg. vesicles filled w pinkish white soft min. (anhydrite?)



CRITICAL FEATURES (description of units or features by number)

1) flow unit (transitional), 60cm welded clinker at top and bottom lg round anhydrite (?) filled vesicles in between. 7% olivine phenos & mph, ol altered to black in a dk. green matrix highly altered to smectite, last 5cm therm. alt. reddish blk.

2) carbonate, .5cm fenger, no visible fossils

CORE LOG

BOX # 563 HOLE # 4 Sheet A

Depth range 1637.39 to 1640.29 meters Depth range 5368.5 to 5378 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1, 2 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	20					
Shape	SA-SR					
Size(x)	~1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						

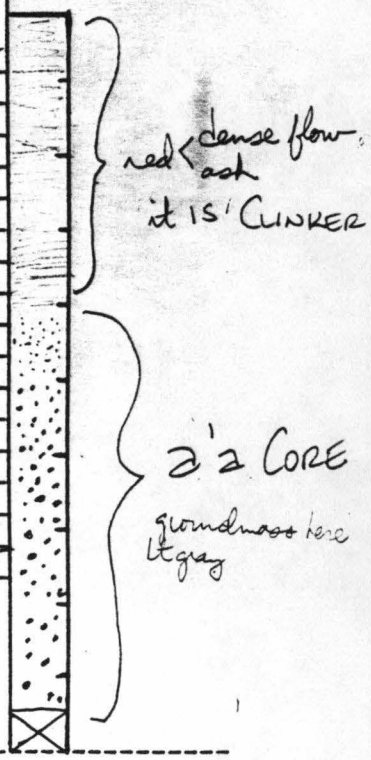
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	✓
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime	✓	
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) a'a Clinker + Core; olivine is present at 10-15% in the clinker + 5-10% in the core. Olivine is altered red Clinker is thermally oxydized. Core has a lt gray matrix in some areas + Smectite in others, the core is on its way to Smectite

2° mineral: Smectite, Iddingsite, Calcite (flakes), Analcime

CORE LOG

BOX # 564 HOLE # 4 Sheet A

Depth range 1640.3 to 1643.04 meters Depth range 5378 to 5387 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash 2 Breccia ____

Number of Units in Box 3 Clk/Rubble 3 Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	10%	15%	20%			
Shape	K-SA	SA-A	R-SA			
Size(x)	<1mm	4mm	<1cm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3%					
<1%		✓	✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments olv → clay, idd.

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

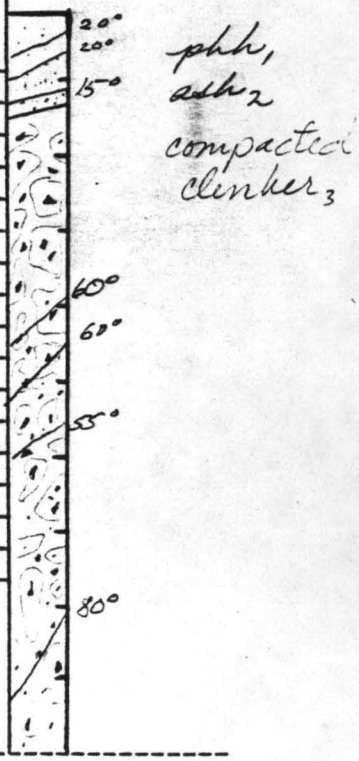
Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.	✓	✓
Smectite		
Calcite	✓	
Zeolite		
white fibrous		
green		
blue		
Analcime	✓	
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in 6 box



phh, ash 2

compacted clinker 3

CRITICAL FEATURES (description of units or features by number)

1) phh, highly altered w/ 3% olivene phenos + mph (altering to idd) vesicles filled w/ smectite in a black aphanitic matrix

2) red thermally oxidized ash / pyroclastic deposit w/ <1% olivene phenos + mph & 3-5% black angular glass (alt → clay) clasts in thermal ashy mat

3) clinker 3 w/ voids filled w/ smectite, fractures lined w/ zeolite (analcime) in a thermally altered, red, clayey matrix. Black angular clasts (alt → clay) also present in the lower 2' of core clasts of pale olive gray (low res. density) appear.

CORE LOG

BOX # 565 1643.04 to 1645.78 meters HOLE # 4 Sheet A

Depth range 5387 to 5396 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	SR					
Size(x)	1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓ 10-12					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ____

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		✓
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

only 9' present

white Zeolite analcime here in void

CRITICAL FEATURES (description of units or features by number)

1) 2'2 flow w/ reddish clinker top, Olivine present @ 10-12% as phenocrysts, microphenocrysts in a lt gray matrix. ≈ 98% of the olivine are altered to Iddingsite and clays. The matrix is also being weathered.

2° minerals: Smectite, Olivine → clay → Iddingsite, Pyrite, Analcime

CORE LOG

BOX # 566 HOLE # Y Sheet A

Depth range 1645.78 to 1648.83 meters Depth range 5396 to 5406 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	SR-A					
Size(x)	2					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

Calcite tiny fleeks, rare.

CRITICAL FEATURES (description of units or features by number)

1) 2'2 core w/ 10% olivine phenocrysts, microphenocrysts in a lt gray diktytaxitic matrix. Some of the olivine are unaltered whereas others are Iddingsite or Clays.

2° Minerals: Smectite, calcite, Olivine → Iddingsite → Clays

CORE LOG

BOX # 567 HOLE # 4 Sheet A

Depth range 1648.8 to 1652.2 meters Depth range 5406 to 5417 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive 2 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	1-2%	<1%				
Shape	R-SR	R				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	7-15%					
	1-5%						
	<1%						
Phenos	✓						
mph	✓						
ol-plag							

Comments olv -> ① idd., gabbroic inclus. in ①

Plagioclase							
>5%							
1-5%		✓					
<1%		✓					
Rhombs							
Blades/laths		✓					
mph		✓					
Comments							
Augite %							

GROUNDMASS (original)

Aphanitic						
Feldspathic micro	✓	✓				
Diktytaxitic	✓	✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

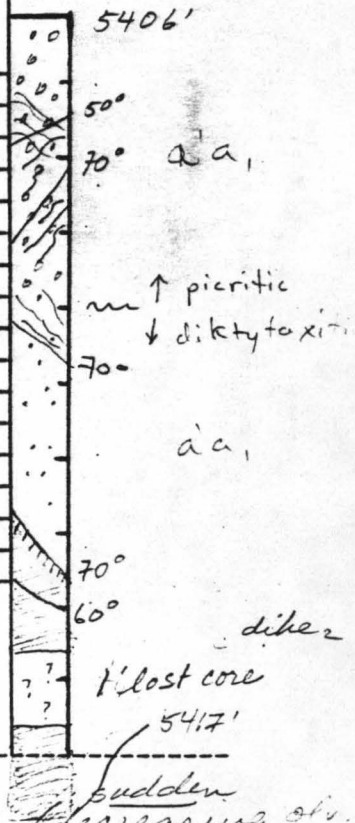
Chlorite ____

Smectite ____

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	①,② ✓	
Calcite	smudgy ③ ✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		① ✓
Pyrite tens	①,② ✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

10" core in box
1' lost core
Ves: Qtz xstls + calcite
fract: smect + pyr.
both more evident as going lower in a'a closer to dike



CRITICAL FEATURES (description of units or features by number)

1) a'a,) picritic w/ 7-15% olivene (idd. halos) phenos + mph (decreasing olv. content down in the unit), chaotic fractures, gabbroic inclusions in a grey microcrystalline feldspathic matrix which also changes dramatically to fine diktytaxitic matrix when the phenos xtls + Qtz xstls + Calcite xstls fill vugs (in close proximity to dike 2)

dike 2 w/ <1% plag. microphenos + laths in a med. grey fine diktytaxitic matrix.

CORE LOG

BOX # 568 HOLE # 4 Sheet A

Depth range 1652.18 to 1654.62 meters Depth range 5417 to 5425 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 2,3 Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)		✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	—	—	10?			
Shape			R			
Size(x)			3mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%		7%	15			
1-5%						
<1%						
Phenos		✓	✓			
mph		✓	✓			
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths						
mph	✓					
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓	✓	?			

SECONDARY FEATURES

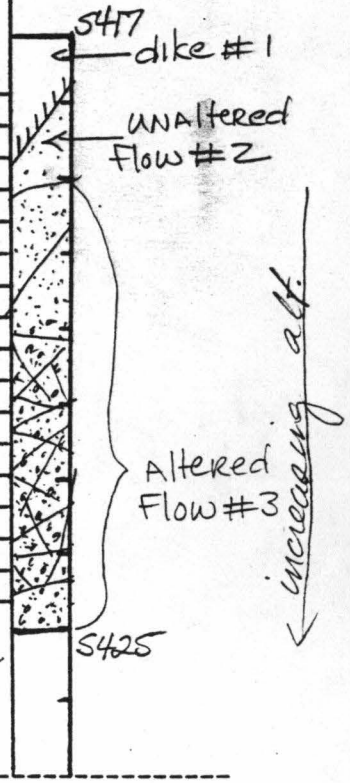
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ✓
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite 3

Secondary/Alteration	Fracture Fill	Vesicle Fill	Min.
Smectite	✓		
Calcite			
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous	✓		
Chalcedony			
Crystals		2	
Pyrite	/		
Epidote			
Gypsum			
Anhydrite		3(?)	

Other(describe)
trans. white platy min on fracts & in voids, unit 2

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, rare plag mph (<1%) in a gray dikty matrix

2) unaltered flow (aa?), 7% olivine phenos & mph, ol alt blk in a gray dikty matrix brecciated near dike contact.

3) altered flow, alteration to red smectite matrix increases downward thru box, size of olivine phenos and/or smectite filled vesicles increases downward thru box from .5 mm to 3mm. Olivine alt to red iridescense, blk. inclusions may be filled vesicles or also alt olivine (Σ25%).

CORE LOG

BOX # 569 63 HOLE # 4 Sheet A

Depth range 1654 to 1657 60 meters Depth range 5425 to 5433 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	SB-A					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ✓

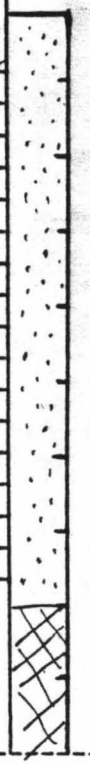
Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

-8' here

- Calcite common



CRITICAL FEATURES (description of units or features by number)

1) a'a core picritic w/15% olivine as phenocrysts, microphenocrysts (altered Iddingsite) in a smectite(clay) matrix. About 10% of the matrix has the 1° colors, texture.

2° minerals: Smectite, Calcite

CORE LOG

BOX # 570 HOLE # 4 Sheet A

Depth range 1657.66 to 1659.81 meters Depth range 5433 to 5442 feet

Logger's Name EAI Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	20					
Shape	R					
Size(x)	2mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic	?					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ✓

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ✓

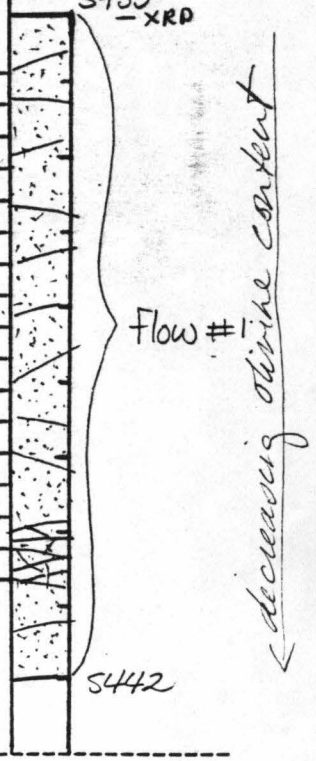
Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	(?) yes	

Other(describe)

anhydrite (?) bottled

5433': "anhydrite" = anhydrite. RE. 13/12/91

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) altered flow, altered red and blk olivine a olivine and smectite filled vesicles 20% at top of box decreases to 16% at bottom in a lt. gray smectite matrix.

2'2

CORE LOG

BOX # 571 HOLE # 4 Sheet A

Depth range 1659.8 to 1662.7 meters Depth range 5442 to 5451.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	3-5%					
Shape	R-SA					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	15-20%					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							

Comments olv + idd.

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay

Iddingsite ✓

Plag -> Clay

Zeolite

Groundmass

Chlorite

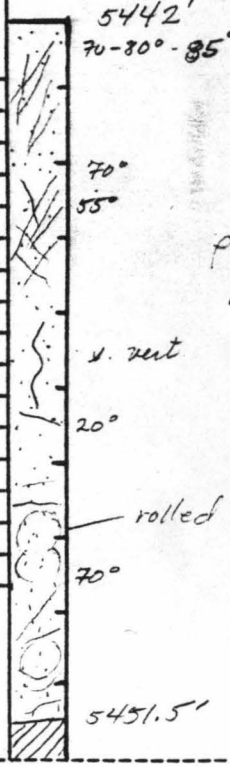
Smectite

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite		
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) phb, picritic moderately altered w/ 15-20% olivene phenos + mph (altering to iddingsite) vesicles filled w/ smectite, hair line fractures in a red-dark grey matrix fine diktytaxitic in the upper unit grading into an aphanitic matrix.

CORE LOG

BOX #: 572 HOLE #: 4 Sheet A

Depth range 1662.7 to 1665.6 meters Depth range 5451.5 to 5461 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive 2,3 Ash ____ Breccia 2

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric			✓			
Vesicles: %	3%	<1%	—			
Shape	R	R				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15%					
1-5%						
<1%		✓				
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments 1) olv. → idd

Plagioclase						
>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths		✓				
mph		✓				
Comments						
Augite %						

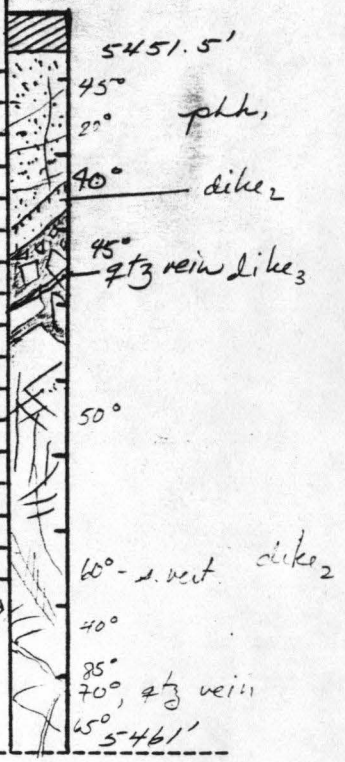
GROUNDMASS (original)

Aphanitic	✓		✓			
Feldspathic						
Diktytaxitic		✓				

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite	✓	
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) Mod. altered phh1, pilotaxitic, w/ 15% olivene phenos + mph (→ iddingsite) in a med-dark gray aphanitic matrix.

2) dike2 w/ <1% olivene phenos + mph and <1% plag microlats + microphenos in a gray fine-grained diktytaxitic matrix. Throughout the unit has hairline fractures & qtz veins increasing upward. The uppermost 1½' of the unit is brecciated by the intrusion of dike3.

CORE LOG

BOX # 573 HOLE # 4 Sheet A

Depth range 1665.60 to 1668.35 meters Depth range 5461 to 5470 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 2 Intrusive 1,3 Ash ____ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)			✓			
Aphyric	✓					
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%		?				
1-5%						
<1%			✓			
Phenos		✓				
mph		✓				
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic		?				
Feldspathic			✓			
Diktytaxitic	✓		✓			

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 2

Iddingsite ____

Plag -> Clay ____

Zeolite ____

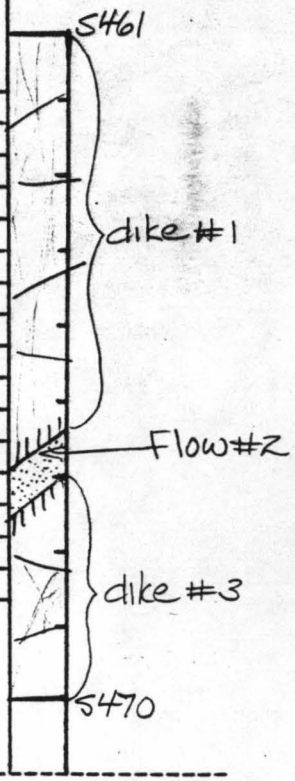
Groundmass

Chlorite ____

Smectite 2

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, brecciated by qtz filled hairline fracts. gray dkty basalt

2) altered flow, olivine phenos & mph, alt. blk in a gray matrix altered toward smectite 7% Transitional

3) dike, aphyric at contact w <1% plag mph becomes dkty feldspathic, gray basalt, dkty text. filled w smectite

CORE LOG

BOX # 574 HOLE # 4 Sheet A

Depth range 1668.35 to 1671.40 meters Depth range 5470 to 5480 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow ___ Intrusive 1-5 Ash ___ Breccia 6

Number of Units in Box 6 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	—		—	—	✓	
micro(<.5 mm)	—	✓	—	—	✓	
Aphyric	✓		✓	✓		✓
Vesicles: %	—	—	—	—	—	—
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

	1	2	3	4	5	6
Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments ___

Plagioclase	1	2	3	4	5	6
>5%						
1-5%					5	
<1%		✓				
Rhombs					✓	
Blades/laths		✓			✓	
mph		✓				

Comments ___

	1	2	3	4	5	6
Augite %					1-3	

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic		✓		✓		✓
Feldspathic	✓		✓		✓	
Diktytaxitic	✓		✓		✓	

SECONDARY FEATURES

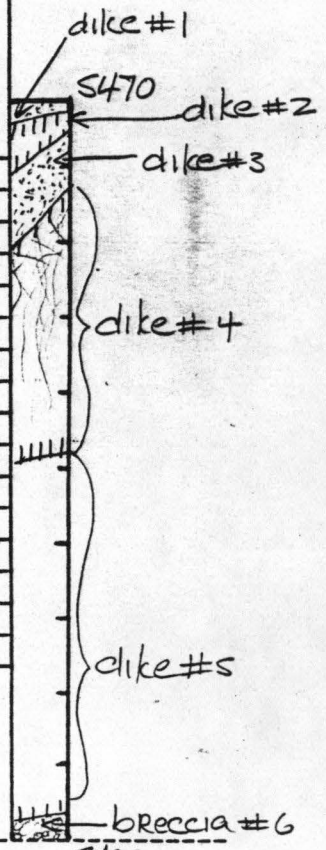
Phenocryst replacements
- Olv -> Clay ___
- Iddingsite ___
- Plag -> Clay ___
- Zeolite ___

Groundmass
- Chlorite ___
- Smectite ___

Secondary/Alteration	Min.	Fracture Fill	Vesicle Fill
Smectite		✓	
Calcite			
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous		✓	
Chalcedony			
Crystals			
Pyrite		✓	
Epidote			
Gypsum			
Anhydrite			
Other(describe)			

COMMENTS

THIN SEC #5 !



CRITICAL FEATURES (description of units or features by number)

1) dike, dikty, micro x-talline gray-felds basalt, dikty text filled w smectite

2) dike, <1% felds mph, aphanitic gray basalt

3) dike, lith as in unit #1

4) dike, somewhat brecciated aphanitic aphyric gray basalt

5) dike, aphyric, aphanitic at contact grades to dikty micro x-talline gray felds basalt, plag blades & laths 10%, augite laths (?) 1-3%,

→

CORE LOG

BOX # 575 HOLE # 4 Sheet A

Depth range 1671.4 to 1674.15 meters Depth range 5480 to 5489 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble 1 Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	Sm					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15					
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

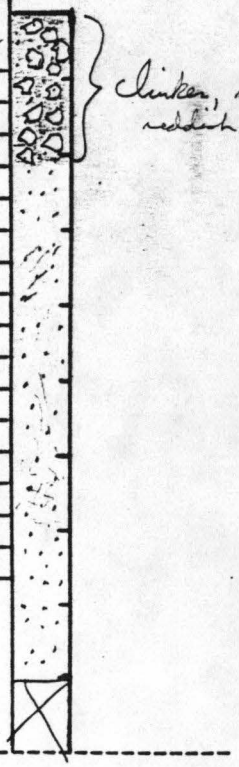
Chlorite ____

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min.
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

Pyrite as Core basal – rare occurrence



clinker, some reddish coloring

CRITICAL FEATURES (description of units or features by number)

1) a'a flow picrite w/ 10-15% olivine as phenocrysts, microphenocrysts in a (formerly) diktytaxitic matrix. Now the matrix is ~~altered~~ 10-40% altered.

Secondary Minerals: Smectite, Calcite, Iddingsite, rare Pyrite

CORE LOG

BOX # 576 .15 to 1677 .20 HOLE # 4 Sheet A

Depth range 1674.15 to 1677.20 meters Depth range 5489 to 5499 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive 2 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	15	20				
Shape	SA	R				
Size(x)	1	1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15					
1-5%		✓				
<1%	✓	✓				
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths		✓				
mph						

Comments ____

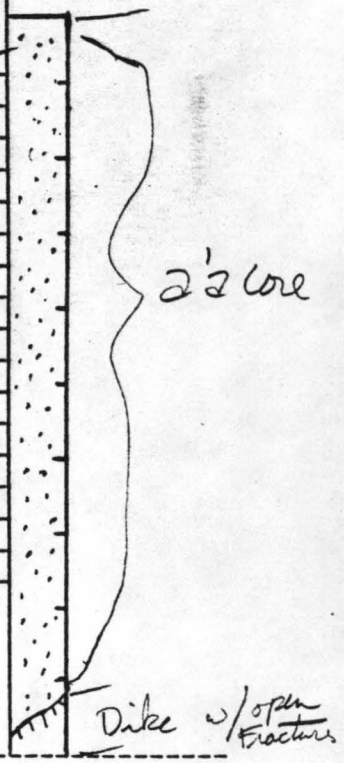
Augite % ____

GROUNDMASS (original)

Aphanitic						
Feldspathic		✓				
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	
Calcite	✓	
Zeolite		
~~green~~white fibrous	✓	
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) 2'2 core picritic basalt w/ 10-15% olivine (altered → clay) in a partially altered matrix ± 50% clay 50% lt gray feldspathic matrix.

2) Dike w/ <1% olivine phenocrysts, microphenocrysts + <1% Plagioclase as laths in an aphanitic/feldspathic matrix.

2° = Smectite, calcite, QTZ, Zeolite green Fibrous

* THIN SECTION * this one

CORE LOG

BOX # 577 HOLE # 4 Sheet A

Depth range 1677.2 to 1679.9 meters Depth range 5499 to 5508 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	✓					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1%					
<1%						
Phenos	✓					
mph	✓					
ol-plag	*					

Comments

Plagioclase						
>5%						
1-5%	1-3%					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					

Comments

Augite	? %	1-5%				

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

olv -> pyroxene?

Groundmass

Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	* ✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite		*
Epidote		
Gypsum		
Anhydrite		

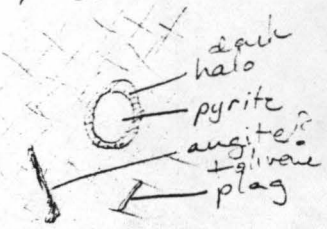
Other(describe)

* pyrite? in phenos.

*fem. fibrous green (erite) looks like zeolite but H ~1-2 Mussmeet

COMMENTS

9' core in box



dike,

CRITICAL FEATURES (description of units or features by number)

1) dike, w/ 1-5% augite laths + phenos (with which pyrite is associated, ~3% pyrite occurs with dark halos "looks like" a primary min.; could be altered augite), 1-3% plag laths + mph in a med. gr. matrix which grades from sparse ~3% total phenos in a fine feldspathic matrix (upper) to ~7% tot. phenos in a coarse dikty. taxitic matrix.

CORE LOG

BOX # 578 HOLE # 4 Sheet A

Depth range 1679.94 to 1682.68 meters Depth range 5508 to 5517 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 2 Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	15				
Shape		SR				
Size(x)		2				

PHENOCRYSTS(Original mineralogy)

Olivine >5%		7				
1-5%						
<1%						
Phenos		✓				
mph		✓				
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%	5					
<1%						
Rhombs						
Blades/laths	✓					
mph						
Comments						
Augite %	1-3					

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic	✓					

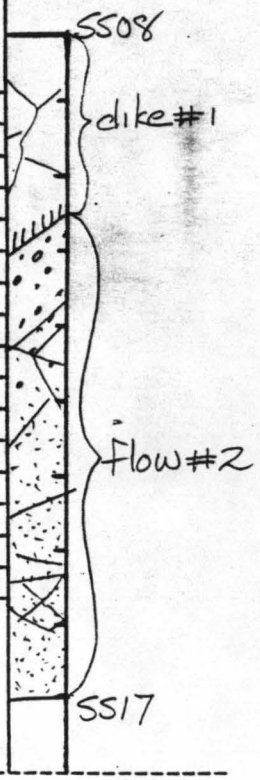
SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite 2

Secondary/Alteration	Fracture Fill	Vesicle Fill
	✓	✓
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	1	
Chalcedony		
Crystals		
Pyrite	1	
Epidote		
Gypsum		
Anhydrite		2
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, plag blades & laths 5%, augite laths (1-3%), brassy metalic phenos (?) 1%, grades to aphanitic, aphyric at contact

2) altered flow, olivine phenos, mph (5-7%) ol alt black, in a gray matrix alt to smectite.

CORE LOG

BOX # 579 HOLE # 4 Sheet A

Depth range 1682.7 to 1685.7 meters Depth range 5517 to 5527 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,3,5 Intrusive 2,4 Ash ____ Breccia 6

Number of Units in Box 6 ~~Clk~~/Rubble 5 Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓	✓	✓	✓
micro(<.5 mm)	✓	✓	✓	✓	✓	✓
Aphyric						
Vesicles: %	5%	←	5%	<1%	3-5%	10%
Shape	R-SR		R-SR	R	R-SR	SR-A
Size(x)	<1mm		<1mm	<1mm	<1mm	<1mm

PHENOCRYSTS(Original mineralogy)

Olivine >5%	20-25%		20%	10%	15-20%	
1-5%						1%
<1%		✓				
Phenos	✓	✓	✓	✓	✓	✓
mph	✓	✓	✓	✓	✓	✓
ol-plag						

Comments Olv → clay

Plagioclase >5%						
1-5%		1-2%				
<1%						
Rhombs						
Blades/laths		✓				
mph		✓				
Comments						
Augite %				?/1%		

GROUNDMASS (original)

Aphanitic	✓	✓	✓		✓	✓
Feldspathic						
Diktytaxitic				✓		

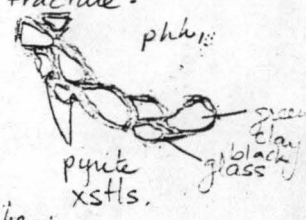
SECONDARY FEATURES

Phenocryst replacements	Fracture Fill	Vesicle Fill
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration		**Min.**
Smectite	✓	
Calcite	½	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	½	
Pyrite		1,3,5 ✓ ½
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

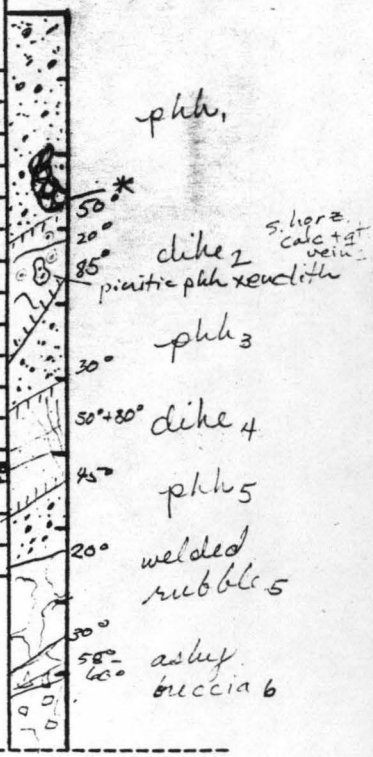
COMMENTS

10' core in box

* fracture?



dike2: alteration halo
pyrite



CRITICAL FEATURES (description of units or features by number)

1) phh1 picritic w/ 20-25% olivine phenos + mph (alt → clays) in a lt grey aphanitic matrix. 2° mins: smectite, pyrite.

2) dike2 w/ 3-5% haloed pyrite, <1% olivine phenos + mph, 1-2% plag. laths + microphenos in a med. grey aphanitic matrix, cut by fractures filled w/ calcite + quartz xstls.

3) phh3 same as phh1

4) dike4 is megaphyric w/ 10% olivine phenos + mph (→ fairly fresh olivine → clay) and 1% augite laths in a fine diktytaxitic matrix. Pyrite present in vesicles of the groundmass.

CORE LOG

BOX # 580 74 HOLE # 4 Sheet A

Depth range 1685 74 to 1688.48 meters Depth range 5527 to 5536 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow / Intrusive ____ Ash ____ Breccia ____

Number of Units in Box ____ Clk/Rubble / Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓					
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	15					
Shape	SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓1					
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%	✓1					
<1%						
Rhombs						
Blades/laths	✓					
mph	✓					
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements ✓

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite Cubic	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

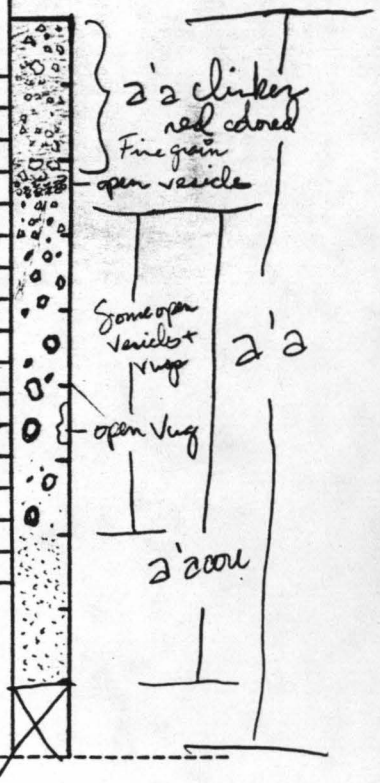
Clear, Thin wafer-like xtal in Vs., Soft Cangred xtal

COMMENTS

only 9' here

Last red/oxidized beds

Qtz -> Smectite in vesicles



CRITICAL FEATURES (description of units or features by number)

1) a'a w/ 1% olivine as phenocrysts, microphenocrysts (altered) + 1% plagioclase as laths, micro laths in a lt gray Diktytaxitic matrix. Vesicles partially open.

2) Minerals: Smectite, Qtz xtals, Pyrite, White xtal UNK?

CORE LOG

BOX # 581 HOLE # 4 Sheet A

Depth range 1688.48 to 1691.22 meters Depth range 5536 to 5545 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1, 2 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	20	20				
Shape	SR	SR				
Size(x)	2mm	3mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1-3	1-3				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓	✓				

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1, 2

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite 2

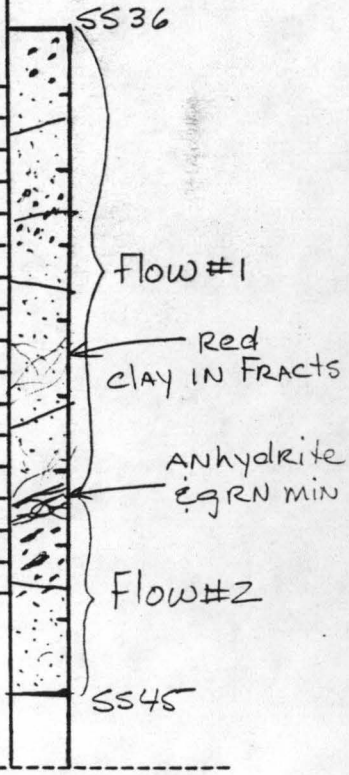
Secondary/Alteration	Fracture Fill	Vesicle Fill
Min.		
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		?
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓#1
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓

Other(describe)

very rare olive grn min in vesicles unit #2

trans. white platy min. in fracts units 1 & 2

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) flow (aa?), olivine phenos & mph (1-3%) of alt blk in a gray dikty. matrix somewhat alt. toward smectite

2) flow (aa?), olivine phenos & mph (1-3%) of alt blk in a lt. gray dikty. matrix more alt than unit above.

CORE LOG

BOX # 582 HOLE # 4 Sheet A

Depth range 1691.22 to 1693.97 meters Depth range 5545 to 5554 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1, 3 Intrusive 2 Ash ____ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric			✓			
Vesicles: %	20	–	10			
Shape	SK		SR-SH			
Size(x)	2mm		1			

PHENOCRYSTS(Original mineralogy)

	>5%	1-5%	<1%	Phenos	mph	ol-plag
Olivine		1				
Phenos				✓		
mph					✓	
ol-plag						

Comments ____

Plagioclase	>5%	1-5%	<1%	Rhombs	Blades/laths	mph
		1-3			✓	

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic						
Diktytaxitic	✓		✓			

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill (Min.)
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	3	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) welded clinker, olivine 1% phenos & mph in a lt gray dkty matrix little altered to smectite, ol alt. blk.

2) dike, plag blades & laths (1-3%) in dk gray aphan. matrix

3) flow (aa?) vesicular at contact (30%) shortly grading to avesicular pronounced dkty text. filled w smectite, wo visible phenos, dk gray unalt. basalt.

CORE LOG

BOX # 583 HOLE # 4 Sheet A

Depth range 1693.97 to 1696.71 meters Depth range 5554 to 5563 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow 1 Intrusive ___ Ash ___ Breccia 2

Number of Units in Box 2 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓	✓				
Vesicles: %	20					
Shape	SR					
Size(x)	3mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

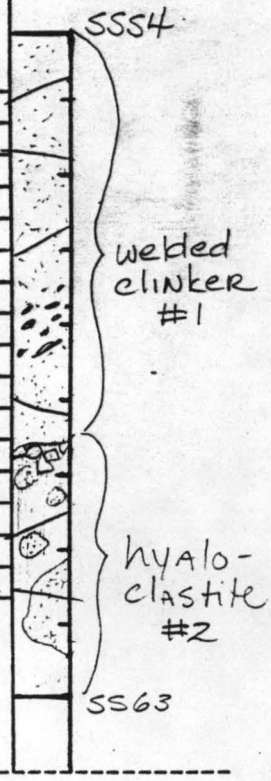
Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite		✓ Min.
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓ #1
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓ #2
Other(describe)		

void fill

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) welded clinker, wo visible phenos, gray unalt basalt areas of vesiculation filled w blk smectite, anhydrite, fdty x-tals.

2) hyaloclastite (?), vesicular angular clasts, vesicular rounded clasts in a clayey matrix which ranges from blk to greenish golden brown, wo visible phenos. Small voids filled w anhydrite

CORE LOG

BOX # 584 HOLE # 4 Sheet A

Depth range 1696.7 to 1699.8 meters Depth range 5563 to 5573 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia 1

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	7-10%					
Shape	K-A					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

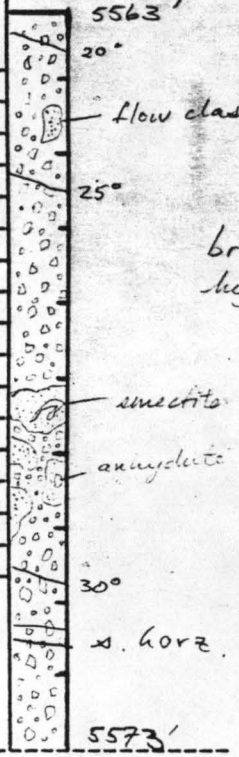
GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements	Fracture Fill	Vesicle Fill
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration	**Min.**	
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite 10%	✓	✓
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) Brecciated hyaloclastite, angular clasts from large 10 cm diam. grey (alt → clays) vesicular green clasts to fine ash. Clasts w/ 4% olivine phenos + mph's in fine matrix w/ smectite clay. Small vugs filled w/ anhydrite. Some clasts are golden, remanescent of ALT 1 glass chill margins or tubes in upper 1 m.

Littoral deposit?

CORE LOG

BOX # 585 HOLE # 4 Sheet A

Depth range 1699.76 to 1702.81 meters Depth range 5573 to 5583 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia 1

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite (?), vesicular & avesicular angular clasts well cemented by a clayey matrix which ranges from blk to greenish brown, no visible phenos. Small voids filled w anhydrite.

CORE LOG

BOX # 586 HOLE # 4 Sheet A

Depth range 1702.8 to 1705.6 meters Depth range 5583 to 5592 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 3,5 Intrusive ____ Ash ____ Breccia 1,8

Number of Units in Box 8 Clk/Rubble ____ Carbonate 2,4,6,7

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)			✓		✓	
micro(<.5 mm)			✓		✓	
Aphyric	✓					
Vesicles: %	5%		—		3%	
Shape	SR-A				R-SR	
Size(x)	<1mm				1mm	

PHENOCRYSTS(Original mineralogy)

	>5%	1-5%	<1%
Olivine		3-5%	5%
Phenos		✓	✓
mph		✓	✓
ol-plag			

Comments olv → clay

Plagioclase	>5%	1-5%	<1%
Rhombs			
Blades/laths			
mph			

Comments

Augite %

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓					
Feldspathic			✓		✓	
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓

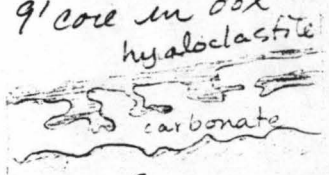
Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

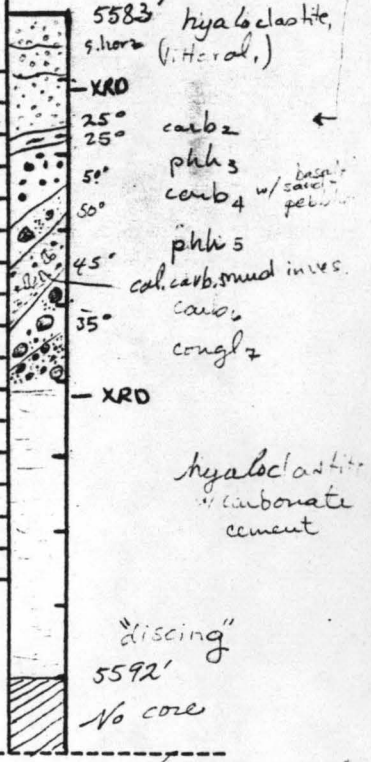
5588.25': "chlorite/serpentine" = smectite + calcium carbonate + trace quartz. RE 12/13/91.

5584.1' "c/s" = smectite, calcite, chrysotile.

COMMENTS

9' core in box





CRITICAL FEATURES (description of units or features by number)

(from coarse to fine at top)

1) Hyaloclastite (brecciated? hyaloclastite) fine grained, graded normally, sandy appearance. Irregular contact w/ #2

2) coralline material, pink carbonate, thin 4cm layer between 1 & 2.

3) phh3, w/3-5% olivine phenos + mph in a grey, microcrystalline feldspathic matrix.

4) Calcium carbonate recrystallized coralline material, reworked, w/ rounded sand-pebbles (<1mm - 15 x 25mm diam.) basalt & olivine (w/ ~3% olivine) 95% carbonate coral 5% basalt sand

5) phh5 w/ 5% olivine phenos + mph (alt → clay) in a med. grey feldspathic ma like #3. Calcium carb. mud in vesicles.

CORE LOG

BOX # 587 HOLE # 4 Sheet A

Depth range 1705.26 to 1708 meters Depth range 5591 to 5600 feet

Logger's Name FT Page 1 of 1

Type of Sample: Flow____ Intrusive____ Ash ✓ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10					
Shape	SA					
Size(x)	1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓ 10-15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓?
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

- only 9'

- white vesicle fill A-QTZ?

CRITICAL FEATURES (description of units or features by number)

1) Fine grained littoral/hyaloclastite deposit. Matrix is dark green smectite. Disking has occured + marred most structural + 1° features. Unit has 10-15% olivine as microphenocrysts phenocrysts.

2° Minerals: Smectite, A-QTZ, clay (altered ol)

CORE LOG

BOX # 588 HOLE # 4 Sheet A

Depth range 1708 to 1710.75 meters Depth range 5600 to 5609 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash✓ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	1					
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10-15					
Shape	SA					
Size(x)	1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15					
1-5%						
<1%						
Phenos						
mph						
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' of core

-Dissig throughout Core box

CRITICAL FEATURES (description of units or features by number)

1) Littoral/hyaloclastite deposit w/ 10-15% olivine phenocrysts microphenocrysts in a fine grained matrix that has been altered → to smectite.

2° minerals = Smectite, A-Qtz, Clay (altered ol

CORE LOG

BOX # 589 HOLE # 4 Sheet A

Depth range 1710.75 to 1712.88 meters Depth range 5609 to 5616 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____ Hyalo ✓1

Number of Units in Box 2 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	15	18				
Shape	sph-A	sph-A				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%		✓15				
1-5%						
<1%						
Phenos		✓				
mph		✓				
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite %						

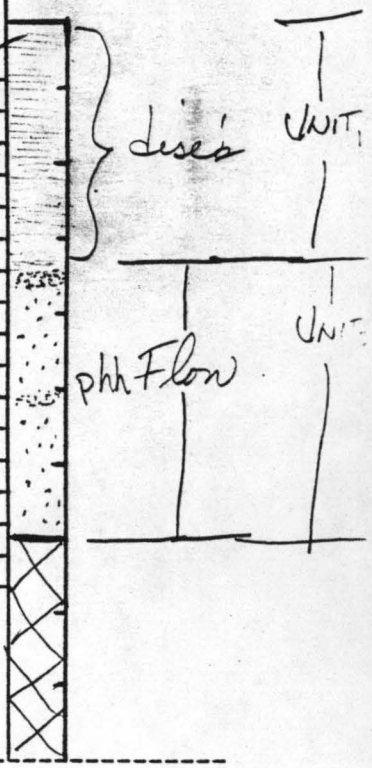
GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS - only 7'

- Unit 2 is porous H_2O is absorbed into core



CRITICAL FEATURES (description of units or features by number)

1) Littoral / Hyalocla[illegible] w/ 10-15% olivine (altered) as phenocrysts microphenocrysts in a smectite matrix.

2) phh w/ 15% olivine as phenocrysts, microphenocrysts in an altered / Smectite matrix. Portions of the matrix still is lt gray in color

2° Minerals Smectite, A-Qtz, Clay (altered olivine

CORE LOG

BOX # 590 HOLE # 4 Sheet A

Depth range 1712'88 to 1715'63 meters Depth range 5616 to 5626 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1, 2 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric	✓	✓				
mega (>.5 mm)	✓	✓				
micro(<.5 mm)						
Aphyric						
Vesicles: %	15	15				
Shape	SA	SA				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15	10-15				
1-5%						
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite 1 ✓, 2 ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min ✓	Min ✓
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica	✓	✓
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

5617.3': "amorphous silica" = ~~white~~ calcium carbonate + clay. RE 12/13/91

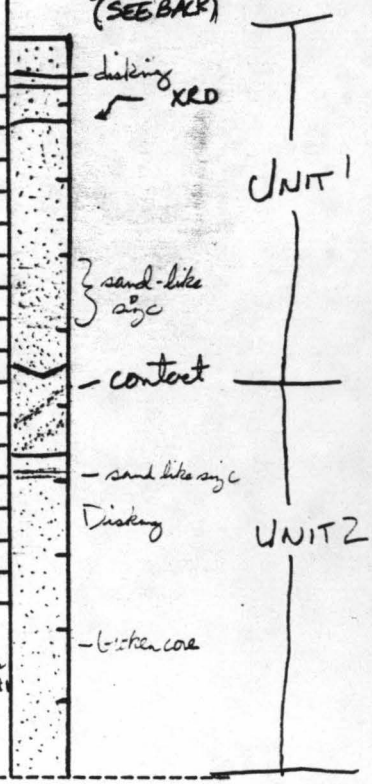
COMMENTS

only 9' here

1) Disking here

2) Unit designation arbitrary, maybe 1 lg. unit here

3) A-QTZ veins assoc. w/ Smectite (SEE BACK)



CRITICAL FEATURES (description of units or features by number)

1) phh unit w/ 10-15% olivine (altered) as phenocrysts, microphenocrysts in an altered smectite (dk green) matrix.

2) phh unit w/ 10-15% olivine (altered) as phenocrysts, microphenocrysts in an altered matrix (green smectite)

2° minerals = Smectite, A-QTZ, Clay (altered obv.)

CORE LOG

BOX # 591 HOLE # 4 Sheet A

Depth range 1715.63 to 1718.22 meters Depth range 5625 to 5633.5 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____ Hyalo ✓2

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	20	16				
Shape	SR-A	SR-A				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15	10-15				
1-5%						
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic ____

Feldspathic ____

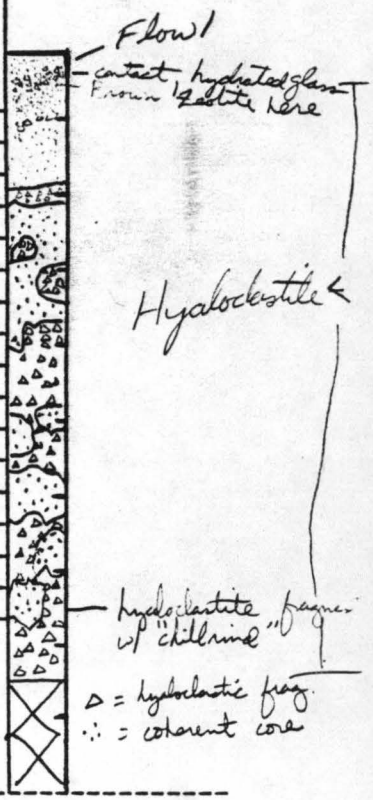
Diktytaxitic ____

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration		Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

– 8.5' of Core present

Brown Zeolite – radiating needles



CRITICAL FEATURES (description of units or features by number)

1) phH w/ 10-15% olivine as phenocrysts, microphenocrysts in an altered smectite matrix.

2) Hyaloclastite/Volcaniclastic matrial w/ 10-15% olivine as phenocrysts microphenocrysts in an altered → ltgray matrix. (pillow? RE 10/92)

The non core areas have tiny veinlets of A QTZ, + highly Fragmented!

2° Minerals: A-QTZ, SMECTITE, Clay (Brown Zeo, Altered Olivine)

CORE LOG

BOX # 592 HOLE # 4 Sheet A

Depth range 1718.22 to 1722.64 meters Depth range 5633.5 to 5648 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	?					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	?					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) subaq. flows (?), 10-15% olivine phenos & mph, olivine ranges from unaltered to blk clay, in a matrix wholly altered to grn smectite. Unit shows a high degree of diskine and has decomposed to sandy grus in 2 places in box

CORE LOG

BOX # 593 HOLE # 4 Sheet A

Depth range 1722.64 to 1724.47 meters Depth range 5648 to 5654 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow / Intrusive ___ Ash ___ Breccia ?

Number of Units in Box / Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	?					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

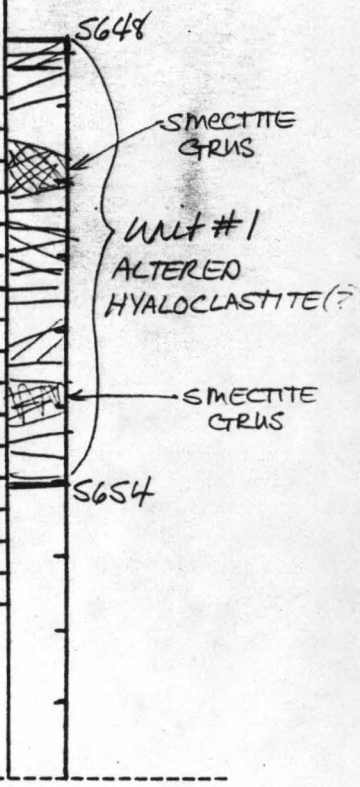
Chlorite ___

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

irregular voids

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) subaq. flow(?), ? hyaloclastite(?), 10-15% olivine phenos & mph, ol ranges from unaltered to black clay, in a matrix wholly altered to grn smectite. Unit may be hyaloclastite because no vesicles structures are visible and amor. silica infills irregular voids as seen in unaltered hyaloclastites.

CORE LOG

BOX # 594 HOLE # 4 Sheet A

Depth range 1624.47 to 1627.52 meters Depth range 5654 to 5664 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow ? Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

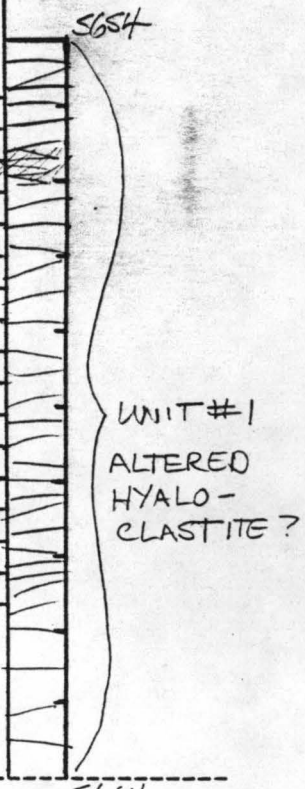
Olivine	>5%	10? 15					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							
Comments							
Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							
Comments							
Augite	%						

GROUNDMASS (original)

Aphanitic		?					
Feldspathic							
Diktytaxitic							

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite (?), subaq flow (?), 10-15% olivine phenos ± mph, olivine alt. to blk clay, in a matrix completely altered to grn smectite. Silica infills irregular voids.

CORE LOG

BOX # 595 HOLE # 4 Sheet A

Depth range 1727.52 to 1730.26 meters Depth range 5664 to 5673 feet

Logger's Name EAI Page 1 of 2

Type of Sample: Flow 4 Intrusive ____ Ash ____ Breccia 1,2

Number of Units in Box 4 Clk/Rubble ____ Carbonate 3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓		✓		
micro(<.5 mm)	✓	✓		✓		
Aphyric						
Vesicles: %	~	~	~	~		
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15	10				
1-5%				5		
<1%						
Phenos	✓	✓		✓		
mph	✓	✓		✓		
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

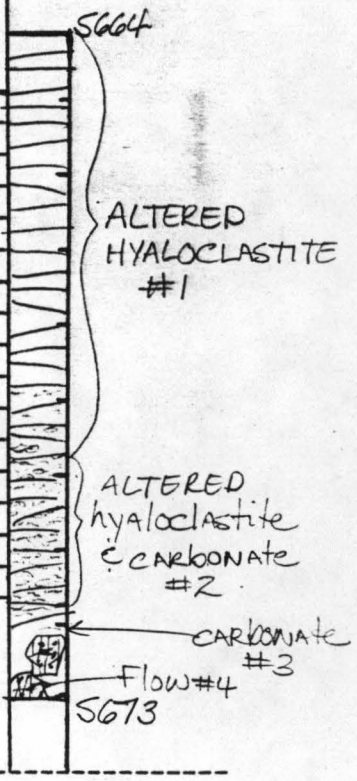
GROUNDMASS (original)

Aphanitic	~	~	~	✓		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	1,2,4	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	/	
Secondary/Alteration		Min.
Smectite		
Calcite	3,4	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

unit 3 shows 2° fracts filled w white calcite



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, 10-15% olivine phenos & mph, ol alt to blk clay, in a matrix completely altered to grn smectite.

2) hyaloclastite & carbonate cement, lith as above but discreet areas are infilled w gray, fine grained, indurated carbonate (lime mud?)

3) carbonate, microscopic glass(?) shards in a fine grained, indurated carbonate matrix (lime mud?) grades downward to dark and light (av. 2mm) undulating (sed?) banding.

→

CORE LOG

BOX # 596 1730.27 to 1733.32 HOLE # 4 Sheet A

Depth range 1730.27 to 1733.32 meters Depth range 5673 to 5683 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 3 Intrusive ____ Ash 1, 2 Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	3	10	10			
Shape	SA	SA	SA			
Size(x)	<1	<1	<1			

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7	5-7	5-7			
1-5%						
<1%						
Phenos	/	/	/			
mph	/	/	/			
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1, 2, 3

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

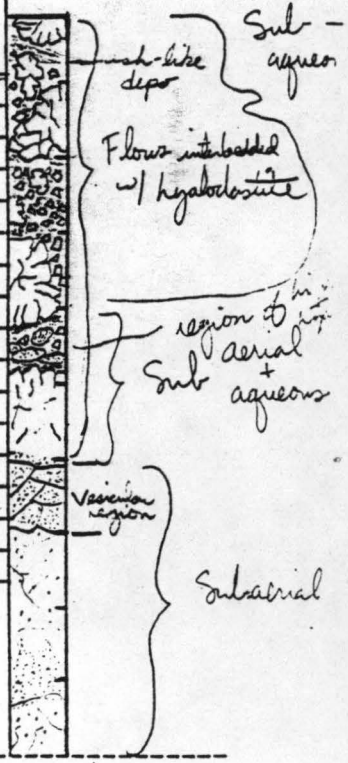
Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min.
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

2° min assoc QTZ => Calcite



CRITICAL FEATURES (description of units or features by number)

Divided according to region formed (Sub aerial - subaqueous)

Subaqueous 1) Flows interbedded w/ hyaloclastite, olivine present @ 5-7% as phenocrysts, micro phenocrysts in a bluish gray matrix. Interbedded material is hydrated glass, lithics + fine grained ashy glass deposits. Jointing Common

Subaqueous + Subaerial 2) Flows interbedded w/ vesicular clasts + quenched glassy rind/margins. The flows have olivine @ 5-7% as phenocrysts, microphenocrysts in a bluish gray matrix.

Subaerial 3) Flows dense core + hi vesicular regions, 5-7% olivine as phenocrysts, microphenocrysts in a bluish gray matrix.

2° Minerals: Smectite, Calcite, QTZ stds, Clay (altered olv.)

CORE LOG

BOX # 597 HOLE # 4 Sheet A

Depth range 1733 to 1736 meters Depth range 5683 to 5692 feet

Logger's Name KE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	<1%	<1%				
Shape	R-SR	R-SR				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5%						
1-5%		3-5%					
<1%							
Phenos	✓	✓					
mph	✓	✓					
ol-plag							

Comments olv → clays

Plagioclase							
>5%							
1-5%							
<1%							
Rhombs							
Blades/laths							
mph							
Comments							
Augite %							

GROUNDMASS (original)

Aphanitic	✓	✓					
Feldspathic							
Diktytaxitic							

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ____
- Iddingsite ____
- Plag -> Clay ____
- Zeolite ____

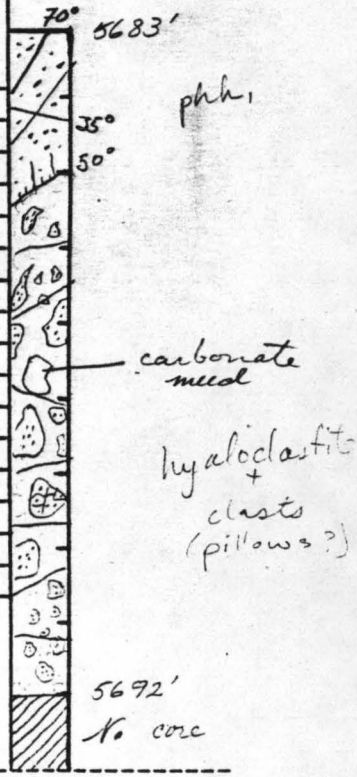
Groundmass
- Chlorite 5690'* ? ✓ *
- Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
Min.		
Smectite		
Calcite		✓
Zeolite		
white fiberous		
green (laumontite?)		✓
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box

*Fractures ~5690' filled w/ calcite? smectite? 2° xsts? Transition between smectite and chlorite?



CRITICAL FEATURES (description of units or features by number)

1) phh. flow w/ 5% olivene phenos + mph (alt → clays) in a mod dark grey aphanitic matrix. fractures ⊥ to contact w/ unit 2

2° mins: clays (sub aerial)

2) Littoral deposit (subaqueous) hyaloclastite, w/ 3-5% olivene phenos + mph in grey aphanitic matrix (clasts). These clasts look like phh. w/ glassy margins Angular clasts in golden-green - black glassy: ashey, indurated matrix - clay? 2° mins: smectite, chlorite, calcite, Carbonate mud clast/fill? - clay? quartz. xstls + amorph. silica.

CORE LOG

BOX # 598 HOLE # 4 Sheet A

Depth range 1736.06 to 1739.11 meters Depth range 5692 to 5702 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 2 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	–	–				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	5-7%					
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

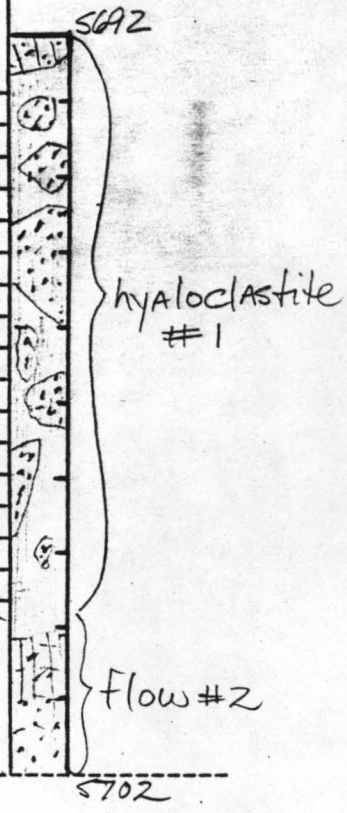
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration	Fracture Fill	Vesicle Fill (Min.)
Smectite		
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓
Other(describe)		

irregular voids 5695 – fibrous, tan radiate. zeolite (?)

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, highly vesicular (40%, .5mm) and a vesicular rounded and angular clasts, olivine phenos & mph (5-7%), ol alt blk, in a fine grained indurated blk matrix Some clasts show thick golden brn quench rinds.

2) flow (or lg clast), avesicular, ol phenos & mph, ol alt blk, in a gray slightly alt basalt matrix, somewhat brecciated.

CORE LOG

BOX # 599 1739'11 to 1742'14 HOLE # 4 Sheet A

Depth range 1739 to 1742 meters Depth range 5702 to 5712 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow ___ Intrusive ___ Ash ✓ Breccia ✓

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓					
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	3					
Shape	SC-SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration	Min. ✓	
Smectite		
Calcite		
Zeolite		
white fiberous		
green		✓
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓
Other(describe)		

COMMENTS

— QTZ before green Zeolite

— hyaloclastite in green color

— contacts

CRITICAL FEATURES (description of units or features by number)

1) Sub aqueous erupted lavas / pillows + associated hyaloclastite w/ 5-7% olivine phenocrysts, microphenocrysts in a lt gray matrix. Hydrated quenched glass has been altered to smectite, dark green clays.

2° minerals: Smectite, QTZ xtals, Anhydrite, green Zeolite

CORE LOG

BOX # 6C0 HOLE # 4 Sheet A

Depth range 1742 to 1745 meters Depth range 5712 to 5721.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 3 Clk/Rubble ____ Carbonate 3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	1%	*1-35%				
Shape	S-SR	S-SA				
Size(x)	<1mm	<1mm				

*depends on clast.

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%	*1%				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill Min.
Smectite		✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		✓
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		✓
Other(describe)		

COMMENTS

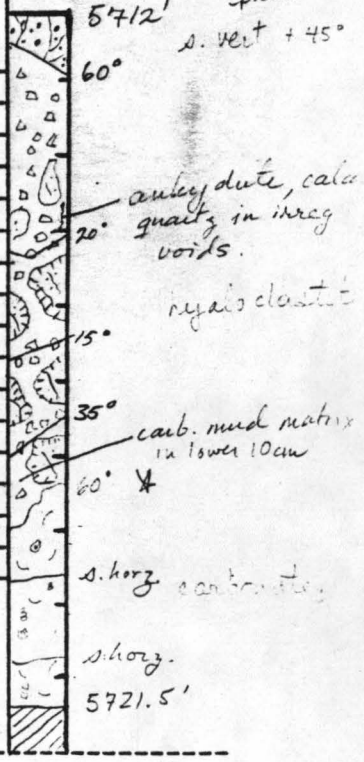
9.5' core in box

(UNIT 3)

clam shell calcite

?

* There is no chill marg' or alteration of carb at upper contact. It looks like the hyaloclastite was cool when it deposited outop the ca phlo.



CRITICAL FEATURES (description of units or features by number)

1) pink? (subaerial) w/ 3-5% olivine phenos + mph (altering to clay) in pink aphanitic matrix.

2) Littoral deposit (hyaloclastite, subaqueous) w/ angular clasts of dense flow, w/ glassy margins, and w/ clasts of highly vesicular basalt, in gelatin-green-black glassy, sandy matrix. Ankydite (35%) and quartz and calcite fill irregular, angular void spaces between clasts and vesicles of some clasts. Lower 10cm the matrix is tuffaceous + more carbonate and sand sediment.

3) Carbonate varying from pink (carb, coral, fossil debris) to grey (detrital

CORE LOG

BOX # 601 HOLE # 4 Sheet A

Depth range 1745.06 to 1747.95 meters Depth range 5721.5 to 5731 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box 2 Clk/Rubble____ Carbonate 1,2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	—	—				
micro(<.5 mm)						
Aphyric	—	—				
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	—	—				
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

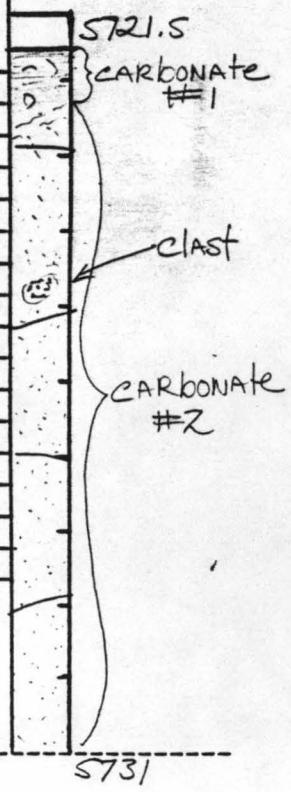
Chlorite____

Smectite____

Secondary/Alteration	Fracture Fill	Vesicle Fill
		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

most shell frags are elypsoid



CRITICAL FEATURES (description of units or features by number)

1) carbonate, shell frags. and very fine basalt sand cemented by a carbonate matrix, gray in color.

2) carbonate, fine grained carbonate, cream white in color. Occaisional shell frags., echinoderm spines, and shell molds. Core shows small shallow irregular voids along barrel surface but is solid in X section. Contains 1 lg. (3.5×1cm) clast which appears to show concentric accretion rinds. # of shell frags & void size (increases) coarsens slightly. →

CORE LOG

BOX # 602 HOLE # 4 Sheet A

Depth range 1747.95 to 1750.70 meters Depth range 5731 to 5740 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	/					
micro(<.5 mm)						
Aphyric						
Vesicles: %	/					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	/					
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic	/					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

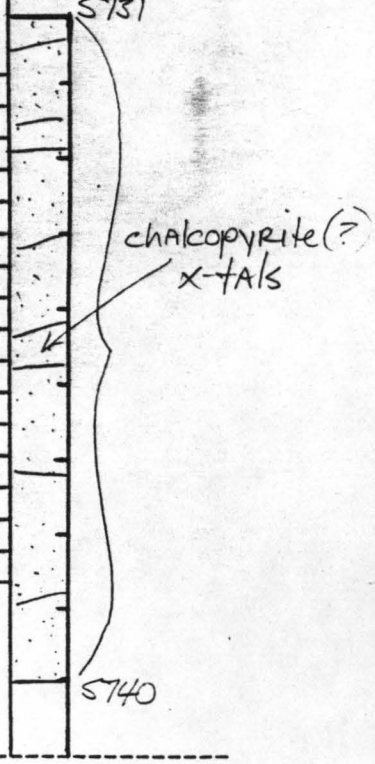
Groundmass

Chlorite____

Smectite____

Secondary/Alteration	Fracture Fill	Vesicle Fill
Min.		
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) carbonate, abundant shell frags. cemented by a fine grained carbonate matrix cream white in color. # of shell frags increases and voids on barrel surface coarsen downward thru box. Loosely spiraling gastropods visible at 5738'

Porosity

CORE LOG

BOX # 603 HOLE # 4 Sheet A

Depth range 1750.7 to 1753.8 meters Depth range 5740 to 5750 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

10' core in box

excellent example @ 5744'

pos. relief

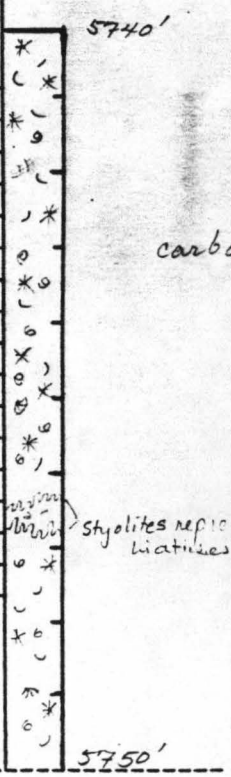
negative relief

snails?

coral septa?

clam molds

coral



CRITICAL FEATURES (description of units or features by number)

1) carbonate, with coral fragments, clam molds, snails, and other organic remains in a pink - white carbonate mud. Altogether carbonate + fossils comprises 90-95%. w/ 5-10% basalt sands + finer muds.

CORE LOG

BOX # 604 HOLE # 4 Sheet A

Depth range 1753.75 to 1756.50 meters Depth range 5750 to 5759 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 3 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ✓

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)			✓			
micro(<.5 mm)			✓			
Aphyric						
Vesicles: %	30	15	6			
Shape	SD-A	SD-A	SD-A			
Size(x)	<1	<1	<1			

PHENOCRYSTS(Original mineralogy)

Olivine >5%			10-15			
1-5%						
<1%						
Phenos			✓			
mph			✓			
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic			✓			
Feldspathic						
Diktytaxitic						

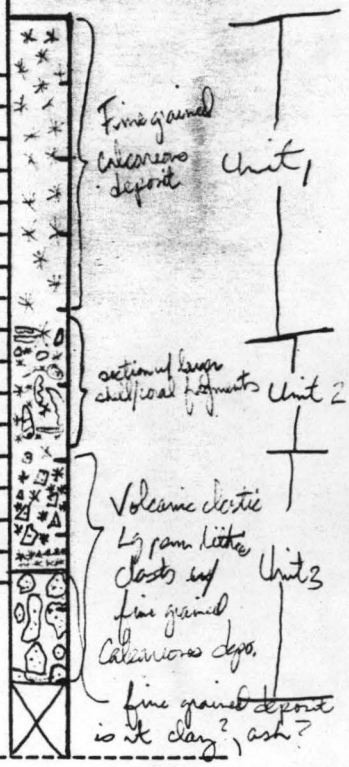
SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		Min.
Smectite		
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		✓
Pyrite		
Epidote		
Gypsum	✓	✓
Anhydrite		
Other(describe)		

COMMENTS

9' of Core here

- steals in Vugs
- Not loss in HCl
- Soft
Calling it Anhydrite
- Metallic xtal not anhydrite calling it Pyrolinotite

* - fine grained calcareous sed.



CRITICAL FEATURES (description of units or features by number)

1) Unit 1 is calcareous deposit of fine grained coral, coralline algae + shell fragments average grain size is > 3mm.

2) Unit 2 consists of large pieces of coral, coralline algae and shell fragments in a matrix of fine grained calcareous deposits, + fine grained volcaniclastics

3) Unit 3 is dominated by lithic/volcanic clasts picritic 10-15% phenocrysts, microphenocrysts the matrix is comprised of volcaniclastics, some calcareous sediments.
2° MINERALS: CALCITE, Anhydrite, Smectite, ~~Pyrrhotite~~, Chalcopyrite

CORE LOG

BOX # 605 HOLE # 4 Sheet A

Depth range 1756.5 to 1759.5 meters Depth range 5759 to 5769 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 3 Intrusive 2 Ash ____ Breccia 1

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	<1%	<1%	<1%			
Shape	SR-A	R-SA	SR-A			
Size(x)	<1mm	<1mm	<1mm			

PHENOCRYSTS(Original mineralogy)

Olivine ↓ >5%	* 30-40%	5-7%	30-50%			
1-5%						
<1%						
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments

Plagioclase						
>5%						
1-5%		1%				
<1%						
Rhombs		✓				
Blades/laths		✓				
mph		✓				

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic		✓				
Diktytaxitic	✓		✓			

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite ?

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

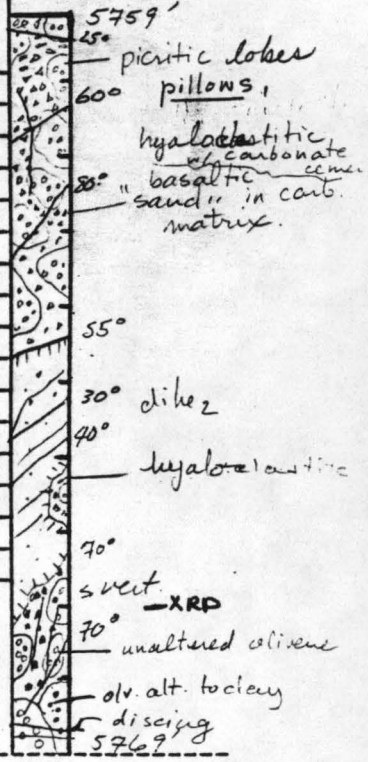
Other(describe)

5767': "smectite/chlorite?" = clay, chrysotile. RE 12/13/91

COMMENTS

10' core in box

Sampled smectite - like green waxy mix - fibrous. The unidentified form + also associated w/ above core, appears to be either changing or increasing in concentration. Chlorite? From fractures of UNIT 3.



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite, w/ lobes of picritic pillow lavas

The Hyaloclastite consists of angular basalt clasts in pink-green carbonate sediment

The picritic * pillow lava lobes have 30-40% olivene (fresh, fairly unaltered) in a med grey diktytaxitic matrix. In some lobes the olivene is altered to green clays.

2) dike 2 w/ 5-7% olivene phenos + mph (fairly fresh) and 1% plag laths + mph in a microcrystalline felsitic matrix.

3) flow, (pkh?) w/ 30-50% olivene phenos + mph in a med grey diktytaxitic matrix. Zones of unaltered olivene emerging into zones of olivene altered to clays.

CORE LOG

BOX # 606 HOLE # 4 Sheet A

Depth range 1759.55 to 1761.99 meters Depth range 5769 to 5777 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	25					
Shape	R-A					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

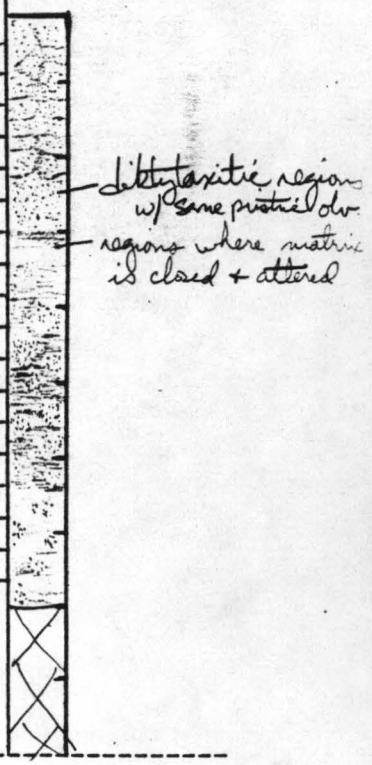
Olivine >5%	✓30-40%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration	Min.	
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH	✓	
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS only 8' here



CRITICAL FEATURES (description of units or features by number)

1) Pristine basalt w/ 30-40% olivine phenocrysts, microphenocrysts in a diktytaxitic matrix. The phenocrysts in places are pristine. The matrix is patchy diktytaxitic in other regions where reworked the matrix is altered + closed (No vesicles, openings)

2° Minerals: Smectite, clay (olv.), MgOH (blues staining)

CORE LOG

BOX # 607 HOLE # 4 Sheet A

Depth range 1761.99 to 1765.04 meters Depth range 5777 to 5787 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	20					
Shape	SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	35-40					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue	✓	
Analcime		
Chabazite		
MgOH	✓	
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

-some of the olivine are still in pristine condition

CRITICAL FEATURES (description of units or features by number)

1) Pristic phh w/ 30-40% olivine as phenocrysts, microphenocrysts in a diktytaxitic matrix. Some of the olivine are still in pristine condition. The matrix is diktytaxitic to intersertal

(blue stain?)

2° Minerals: Smectite, Blue Zeolite/MgOH, Clay (altered olv.)

CORE LOG

BOX # 608 Depth range 1765.04 to 1767.78 meters HOLE # 4 Sheet A Depth range 5787 to 5796 feet
Logger's Name FT Page 1 of 2
Type of Sample: Flow ___ Intrusive ___ Ash ___ Breccia ___
Number of Units in Box 1 Clk/Rubble ___ Carbonate ___
Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	15	<1				
Shape	SE-SA	R				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓25-35					
1-5%						
<1%		✓				
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths		✓				
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements
Olv -> Clay ___
Iddingsite ___
Plag -> Clay ___
Zeolite ___

Groundmass
Chlorite ___
Smectite ___

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	

Other(describe)
lt powder blue clay or Zeolite

COMMENTS
- 9' of Core here
- lt powder blue Zeolite or Clay?
- Calcite (lt green) on Smectite
- Anhydrite, thin flakes + elongate xtals

CRITICAL FEATURES (description of units or features by number)

1) Picritic phh w/ 25-35% olivine as phenocrysts, micro phenocrysts in a mostly altered matrix.

2) Dike w/ <1% olivine as phenocrysts, microphenocrysts + <1% Plagioclase laths in a dk gray aphanitic matrix.

2° Minerals: SMECTITE, Clay (altered dev), ANHYDRITE, lt powder blue clay (OH)

CORE LOG

BOX # 609 HOLE # 4 Sheet A

Depth range 1767.8 to 1770.9 meters Depth range 5796 to 5805.5 feet

Logger's Name RE Page ___ of ___

Type of Sample: Flow 2 Intrusive 1 Ash ___ Breccia 3

Number of Units in Box 5 Clk/Rubble ___ Carbonate 4,5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	.	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	<1%	—	1%			
Shape	R-A		S-SR			
Size(x)	<1mm		<1mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%		30-40%				
1-5%			3%			
<1%	✓					
Phenos		✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments ___

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

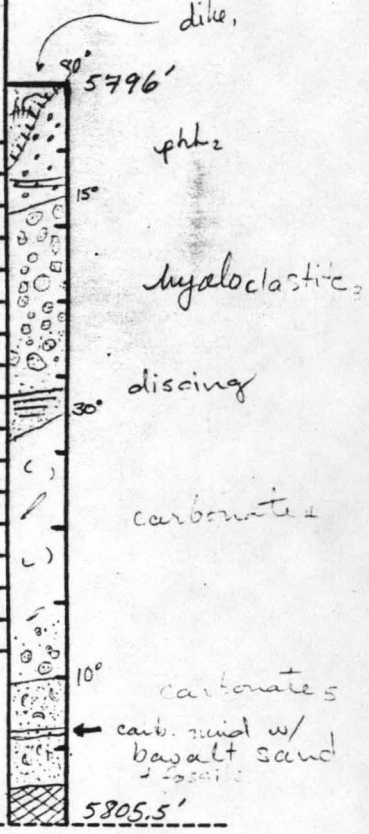
Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' core in box

Units 4-6: echinoderm spines (fauna), clam, coral.



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivine mph in a dark gray glassy matrix. Intrudes [illegible] aphanitic matrix, [illegible]

2) flow (phl₂?) w/ 30-40% olivine mph - phenos [illegible] gray aphanitic matrix, [illegible] altered [illegible]

3) hyaloclastite w/ clasts containing 3% olivine phenos + mph in a pale gray [illegible] matrix. The clasts are supported by dark gray-green fine grained [illegible] Grades into finer and finer grained clasts.

4) carbonate + w/ fossils: fauna spines (echinoderm), clam, coral. Lower in the unit rounded clasts of phyric flow appear in the carbonate as well as basalt sand. Upto 3% basalt sand/clast component in lower unit

CORE LOG

BOX # 610 HOLE # 4 Sheet A

Depth range 1770.7 to 1773.6 meters Depth range 5805.5 to 5815 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 3 Intrusive ____ Ash ____ Breccia 4

Number of Units in Box 4 Clk/Rubble ____ Carbonate 1, 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)			✓	✓		
micro(<.5 mm)			✓	✓		
Aphyric						
Vesicles: %			<1%	<1%		
Shape			SR-A	SR-A		
Size(x)			<1mm	<1mm		

PHENOCRYSTS(Original mineralogy)

Olivine >5%			5-10%	7%		
1-5%						
<1%						
Phenos			✓	✓		
mph			✓	✓		
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic			✓	✓		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ____

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

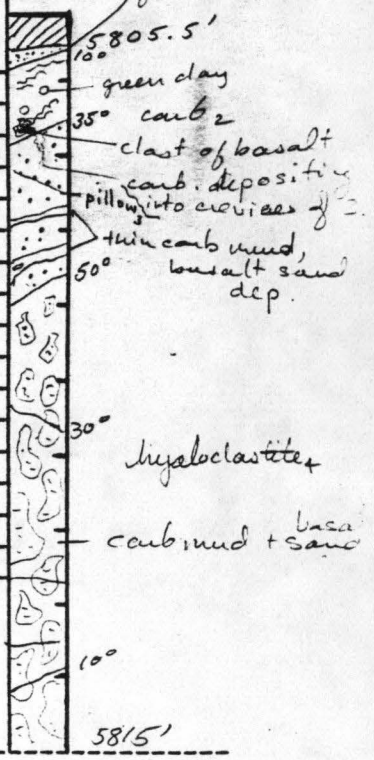
Chlorite ____

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) fine grained conglomerate of basalt sand fossils and carbonate (More complete in box #609)

2) carbonate, coral remains compacted and cemented w/ carbonate mud. Leaves of fine sea green clay. One clast of phylic basalt at unit base (possibly connected to unit 3 in 3-D), the carb mud filling in around. Carb mud filters down into unit 3 crevices.

3) pillow lavas, w/ 5-10% olivene (alt -> clays) phenos + mph in a grey aphanitic matrix. Carb mud + basalt sand deposited in crevices, possibliy gaps in flow lobes.

4) hyaloclastite, w/ 1% clasts of 7% olivene phenos + mph (alt -> clay) in a grey aphanitic matrix in the clasts. Between clasts is carb mud + basalt sand.

CORE LOG

BOX # 611 HOLE # 4 Sheet A

Depth range 1773.6 to 1776.3 meters Depth range 5815' to 5824' feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 2 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	<1%	5-10%				
Shape	R-A	R-A				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%		3-5%				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv alt → clay
gabbroic inclusion

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %	?<1%	?<1%				

GROUNDMASS (original)						
Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

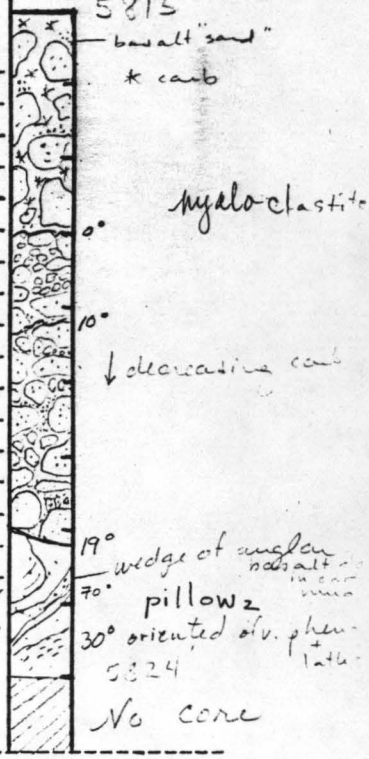
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration min.	Fracture Fill	Ves. fill
Smectite		
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, w/ CLASTS: 5-7% olivine phenos + mph in a moderate grey aphanitic matrix, and <1% augite laths? with basaltic sand well rounded - angular in a carbonate mud matrix. Rosettes and tabular calcite present in voids along w/ smectite. Settling of sand in between clasts indicates sense of up. Decreasing carb. mud in lower unit

2) pillow 2 lava w/ 3-5% olivine phenos + laths w/ <1% augite laths(?) in a med grey aphanitic matrix. Inter toe, phenos are concentrated (oriented) 30°. A wedge of angular basalt clasts ("sand") in carbonate mud between toes

CORE LOG

BOX # 612 HOLE # 4 Sheet A

Depth range 1776.37 to 1779.37 meters Depth range 5824 to 5834 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow ✓ Intrusive ____ Ash / Breccia ____

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	/	/				
micro(<.5 mm)	/	/				
Aphyric						
Vesicles: %	25	3				
Shape	SA	SA-SR				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	1-19	5-7				
1-5%						
<1%						
Phenos	✓	✓				
mph	/	/				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

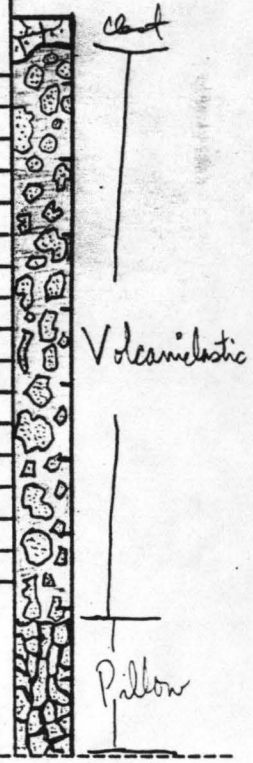
SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ____
- Iddingsite ____
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min	
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) Box consists of Volcaniclastic/Hyaloclastite + Pillow w/ 7-10% olivine as phenocrysts, microphenocrysts in dense dark bluish gray matrix. Volcaniclastic/Hyaloclastite matrix colors range in color from dk bluish gray to pale lime green.

Hyaloclastite is clast dominated ≈ 0.5-1cm size

2° Minerals: Calcite, Smectite, Clay (alt. olv.)

CORE LOG

BOX # 613 HOLE # 4 Sheet A

Depth range 1779.37 to 1782.12 meters Depth range 5834 to 5843 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow ✓ Intrusive ____ Ash ✓ Breccia ____

Number of Units in Box 3 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓	✓	✓			
mega (>.5 mm)						
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	3	10	3			
Shape	SA	SA	SA			
Size(x)	<1	<1	<1			

PHENOCRYSTS(Original mineralogy)

Olivine >5%	7-10	7-10	7-10			
1-5%						
<1%						
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

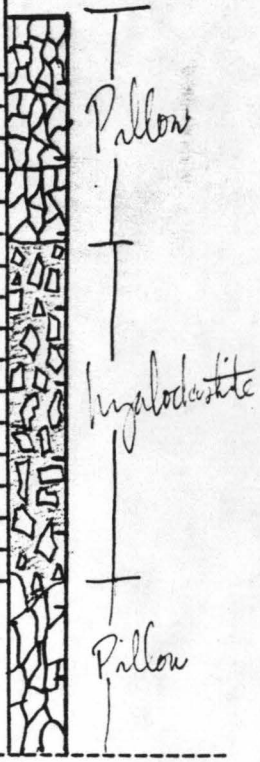
GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		Min.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' here



CRITICAL FEATURES (description of units or features by number)

1) Pillow w/ 7-10% olivine as phenocrysts microphenocrysts in a dk bluish gray matrix

2) Hyaloclastite/Volcaniclastic deposits of clasts angular w/ 7-10% olivine as phenocrysts microphenocrysts in a altered matrix.

3) Pillow w/ 7-10% olivine as phenocrysts, microphenocrysts in a dk (blue gray matrix.

2° Minerals: Calcite, Smectite, Clay (altered olv.)

CORE LOG

BOX # 614 HOLE # 4 Sheet A

Depth range 1782.1 to 1785.2 meters Depth range 5843 to 5853 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	1-15%	1-5%				
Shape	SR-A	R-A				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-10%	7-10%				
1-5%						
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %		<1%				

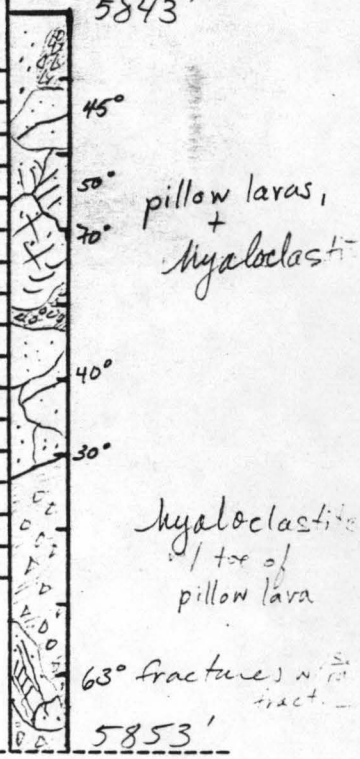
GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

10' core in box



CRITICAL FEATURES (description of units or features by number)

1) pillow lavas, w/ 5-10% olivine phenos + mph in a med grey aphanitic matrix. Crevices filled w/ hyaloclastite of comparable composition Calcite + smectite = 2° min.

2) hyaloclastite, w/ 7-10% olivine phenos + mph and <1% augite laths in a med. grey aphanitic matrix. Toe of pillow lava w/ same composition as 1, highly fractured (including a set of semi radial fractures ½ to dominant fract) 2° min. calcite, smectite. hyaloclastite

CORE LOG

BOX # 615 HOLE # 4 Sheet A

Depth range 1785.2 to 1787.9 meters Depth range 5853 to 5862 feet

Logger's Name RE Page ___ of ___

Type of Sample: Flow 1 Intrusive ___ Ash ___ Breccia 1

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	1-2%					
Shape	R-A					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

Smectite ___

Secondary/Alteration	Min.	Fracture Fill	Vesicle Fill
Smectite	✓		
Calcite		✓	
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous		✓	
Chalcedony			
Crystals			
Pyrite			
Epidote			
Gypsum			
Anhydrite			
Other(describe)			

COMMENTS

9' core in box

CRITICAL FEATURES (description of units or features by number)

1) hyalo-clastics and highly fractured pillow lavas w/ 5-7% olivene phenos + mph in a mod. grey aphanitic matrix.

2° mins: silica, calcite, smectite.

CORE LOG

BOX # 616 HOLE # 4 Sheet A

Depth range 1787.91 to 1790.35 meters Depth range 5862 to 5870 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 2,3 Intrusive ____ Ash ____ Breccia 1,4

Number of Units in Box 4 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %	—	—	—	—		
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10	10	10	10		
1-5%						
<1%						
Phenos	✓	✓	✓	✓		
mph	✓	✓	✓	✓		
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)						
Aphanitic	✓	✓	✓	✓		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

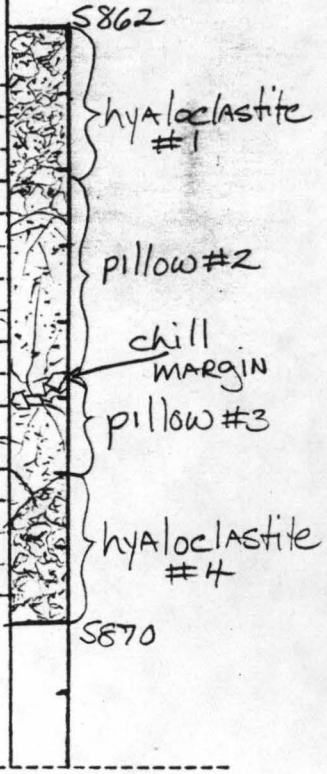
Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ____
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite ____

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

qtz and calcite

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, angular gray basalt clasts with 10% olivine phenos & mph, of alt. blk., welded into a competent unit, 98% of fracts brown clasts filled w blk. smectite, 10% w qtz and calcite.

2) pillow, 10% olivine phenos & mph, of alt blk, in a gray to grayish-tan matrix. Fracts trend ≈ 70%. Brecciated grayish tan chill margin (3cm wide) separates pillows 2 & 3.

3) pillow, lith as above

4) hyaloclastite, lith as above

CORE LOG

BOX # 617 HOLE # 4 Sheet A

Depth range 1796.35 to 1793.25 meters Depth range 5870 to 5879.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 24 Intrusive ____ Ash ____ Breccia 1,3,5

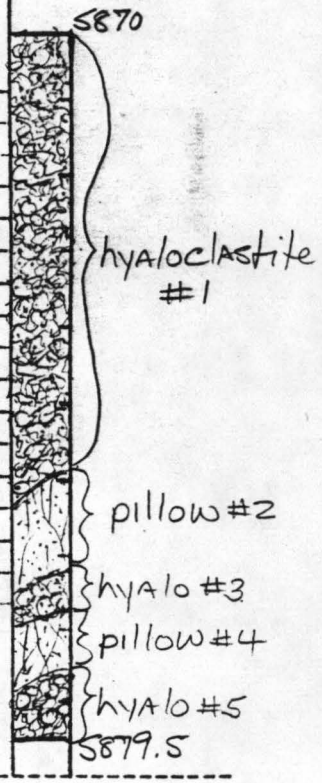
Number of Units in Box 5 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓	✓	✓	
micro(<.5 mm)	✓	✓	✓	✓	✓	
Aphyric						
Vesicles: %	—	—	—	—	—	
Shape						
Size(x)						
PHENOCRYSTS(Original mineralogy)						
Olivine >5%	10	10	10	10	10	
1-5%						
<1%						
Phenos	✓	✓	✓	✓	✓	
mph	✓	✓	✓	✓	✓	
ol-plag						
Comments						
Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						
GROUNDMASS (original)						
Aphanitic	✓	✓	✓	✓	✓	
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		Min.
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, angular gray basalt clasts w 10% olivine phenos & mph, ol alt blk., welded into a competent unit Small voids btwn clasts not completely filled w smectite gives rougher text than last box

2) pillow, 10% olivine phenos & mph, ol alt blk, in a gray matrix 75% of fracts filled w smectite, rare isolated areas of calcite & anhydrite

3) hyaloclastite, lith as above

4) pillow, lith as above 5) hyaloclastite, lith as above

CORE LOG

BOX # 618 HOLE # 4 Sheet A

Depth range 1793.25 to 1795.99 meters Depth range 5879.5 to 5888.5 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow ____ Intrusive ____ Ash ____ Breccia ____ Pillow

Number of Units in Box 5 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓	✓	✓	✓	✓	
mega (>.5 mm)	/	/	/	/	/	
micro(<.5 mm)	✓	✓	✓	✓	✓	
Aphyric						
Vesicles: %	3					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						
Comments						
~~Plagioclase~~ OLIVINE >5%	7-10 ✓	7-10	7-10 ✓	7-10 ✓	>10 ✓	
1-5%						
<1%						
Rhombs						
Blades/laths	✓	✓	✓	✓	✓	
mph	/	/	/	/	✓	
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	–	–	–	✓	✓	
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

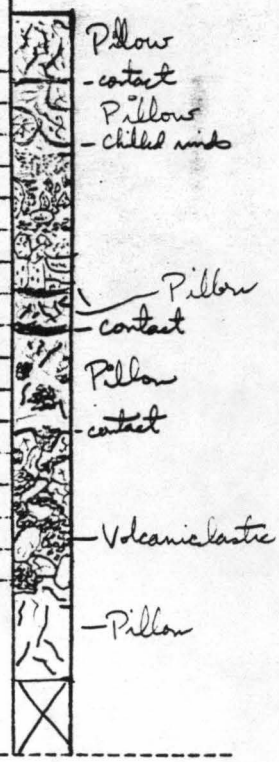
Chlorite

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals ✓		
Pyrite		
Epidote		
Gypsum		
Anhydrite ✓		
Other(describe)		

COMMENTS

- only 9' of Core
- matrix looks 1° but is soft, can be scratched



CRITICAL FEATURES (description of units or features by number)

(4) Pillows + Hyaloclastite/volcaniclastic w/ 7-10% olivine as phenocrysts microphenocrysts in an aphanitic gray matrix. The volcaniclastic + pillows have devios chill rinds (golden color).

2° Minerals: Anhydrite, Smectite, Clay (altered olivine), QTZ-x

CORE LOG

BOX # 619 HOLE # 4 Sheet A

Depth range 1795.99 to 1798.89 meters Depth range 5888.5 to 5898 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____ Pillow ✓

Number of Units in Box____ Clk/Rubble____ Carbonate____ Hyaloclastite ✓

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	3					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	7-10%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

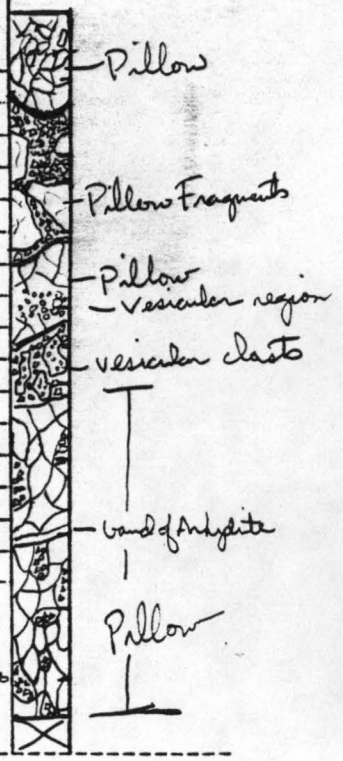
Clear -> white vitreous almost Micaceous flakes in fracture

COMMENTS

9.5' here

- Micaceous - like flakes clear -> white seen Soft calling it Anhydrite

Δ - hyaloclastite / Volcaniclastic



CRITICAL FEATURES (description of units or features by number)

1) Subaqueous Pillows + hyaloclastite w/ 7-10% olivine as phenocrysts micro-phenocrysts in a lt. bluish gray matrix

2°: Anhydrite, Smectite, Clay (altered dv)

white, + clear vitreous Flakes.

Delia

CORE LOG

BOX # 620 — HOLE # 4 — Sheet A

Depth range 1798.89 to 1801.79 meters — Depth range 5898 to 5907.5 feet

Logger's Name FT — Page 1 of 2

Type of Sample: Flow ✓ Intrusive ____ Ash ____ Breccia ____

Number of Units in Box 3 — Clk/Rubble ✓ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	5	5	9			
Shape	SA	R-A	SR-SA			
Size(x)	<1	1	1			

PHENOCRYSTS(Original mineralogy)

Olivine >5%	7-10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

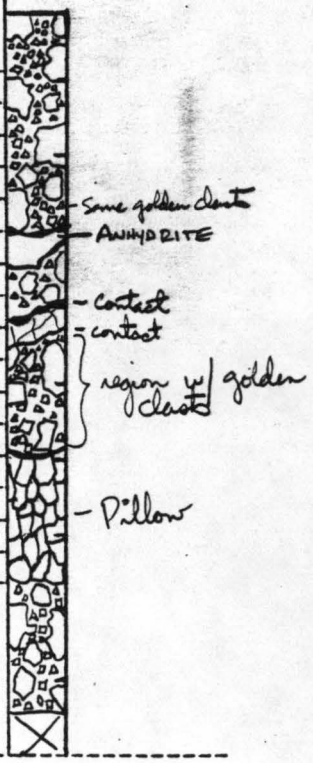
Chlorite ____

Smectite ____

Secondary/Alteration	Min.	Fracture Fill	Vesicle Fill
Smectite			
Calcite	✓		
Zeolite			
white fiberous			
green			
blue			
Analcime			
Chabazite			
MgOH			
Silica			
Amorphous			
Chalcedony			
Crystals			
Pyrite			
Epidote			
Gypsum			
Anhydrite	✓		
Other(describe)			

COMMENTS

-9.5' Core



CRITICAL FEATURES (description of units or features by number)

1) Pillow & Hyaloclastite w/ 7-10% Olivine as phenocrysts, microphenocrysts in a bluish gray matrix. Some of the clasts are vesicular (10-15%).

2° minerals: ANHYDRITE, Smectite, Clay (altered olv.), Calcite

CORE LOG

BOX # 621 1801.79 to 1804.69 HOLE # 4 Sheet A

Depth range 1801.79 to 1804.69 meters Depth range 5907.5 to 5917 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	2%					
Shape	SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	7-10%					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							
Comments							
Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							
Comments							
Augite	%						

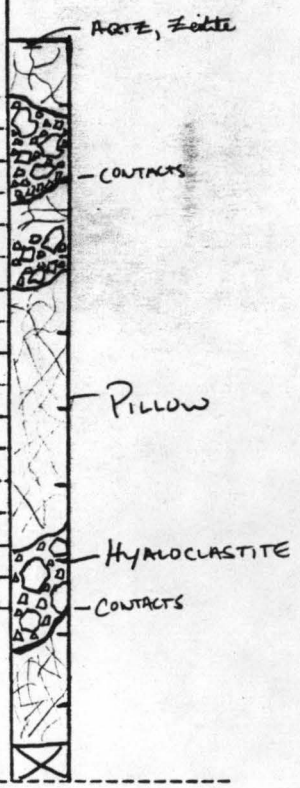
GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Vesicle Fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		Min.
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green	✓	
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

9.5 'Lore



CRITICAL FEATURES (description of units or features by number)

1) Pillows / Hyaloclastite w/ 7-10% olivine as phenocrysts, micro phenocrysts in a lt bluish gray matrix. The hyaloclastite fragments, some of them are golden color. All units basically have the same lithology

2° Minerals: ANHYDRITE, SMECTITE, A-QTZ

CORE LOG

BOX # 622 HOLE # 4 Sheet A

Depth range 1804.69 to 1807.43 meters Depth range 5917 to 5926 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓ 7-10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

-9' here

CRITICAL FEATURES (description of units or features by number)

1 Pillow Massive w/ 7-10% Olivine as phenocrysts, microphenocrysts in a gray matrix.

2°: Anhydrite, Smectite, Clay (altered olv.)

CORE LOG

BOX # 623 HOLE # 4 Sheet A

Depth range 1807.43 to 1910.48 meters Depth range 5926 to 5936 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SBSA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass

- Chlorite
- Smectite

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) 1 Massive Pillow w/ 5-7% olivine as phenocrysts, microphenocrysts in a gray matrix. The matrix is fine grained, sugary in appearance.

2° Minerals: Smectite, Anhydrite, Clay (altered glass)

CORE LOG

BOX # 624 HOLE # 4 Sheet A

Depth range 1910.5 to 1813.2 meters Depth range 5936 to 5945 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%	2%				
Shape	SR-A	SR-A				
Size(x)	<1mm	<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%	3%				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv → dirtrifying + alt to clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Augite %						

Comments ____

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

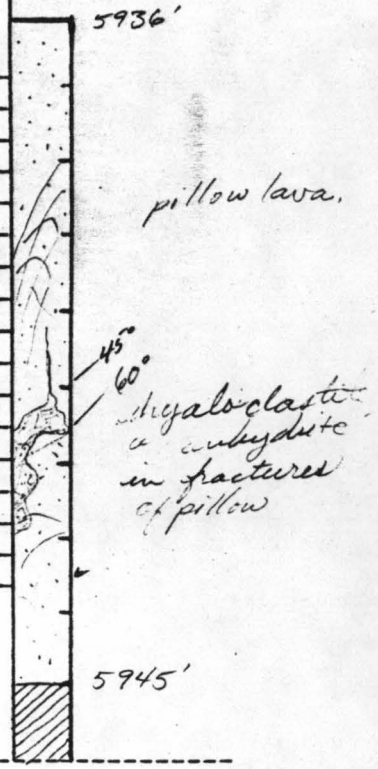
Chlorite ____

Smectite ____

Secondary/Alteration Min.	Fracture Fill	Vesicle Fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) pillow lava, massive w/ 3-5% olivene phenos + mph in a grey aphanitic matrix

2° mins: smectite, anhydrite.

2) hyaloclastite, w/ 3% olivene phenos + mph in a grey aphanitic matrix.

CORE LOG

BOX # 625 HOLE # 4 Sheet A

Depth range 1813.2 to 1816.0 meters Depth range 5945 to 5954 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1,3 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 5 Rubble ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	<1%	<1%	<1%			
Shape	R-A	R-A	R-SA			
Size(x)	<1mm	<1mm	<1mm			

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5%					
1-5%		3-5%	3-5%			
<1%						
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments alv -> clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						

Augite %						

Other (describe)

GROUNDMASS (original)

Aphanitic	✓	✓	✓			
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Iddingsite ____

Other ____

Groundmass

Chlorite ____

Smectite

Serpentine ____

Vesicle fillings

Chlorite ____

Calcite ____

Zeolite ____

Silica ____

Chlorophaeite ____

Other ____

* fracture filling

~~Vein~~ minerals

Chlorite ____

Calcite ✓

Zeolite ____

Silica ____

Chlorophaeite ____

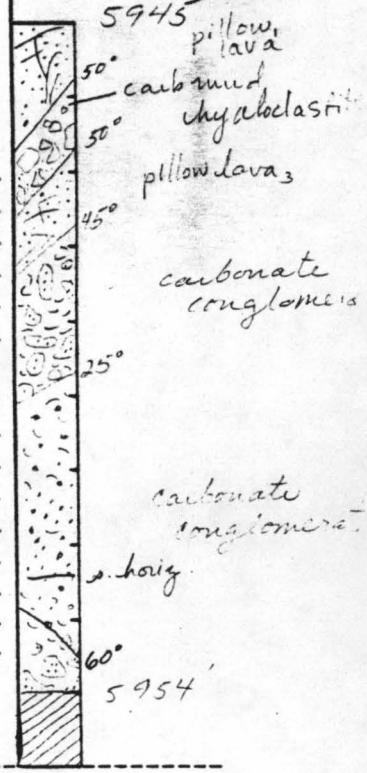
Pyrite ____

Epidote ____

Other ____

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) pillow lava 1 w/ 5% olivine phenos + mph in a gray aphanitic matrix.

2) hyaloclastite 2 w/ 3-5% olivine phenos + mph in a gray aphanitic matrix. clasts of The clasts are surrounded by carbonate mud and smaller clasts

3) pillow lava 3 same as pillow lava 1 w/ 3-5% olivine phenos + mph

4) carbonate conglomerate w/ (dominantly clams) fossil fragments and carbonate mud (50:30:20)

5) carbonate conglomerate w/ large (7cm) diameter clasts at the lower with these clasts grade immediately upward into fine grained (1mm - 2mm) fossils (clams dominantly) and carb mud. (20:20:60)

CORE LOG

BOX # 626 HOLE # 4 Sheet A

Depth range 1815.97 to 1819.02 meters Depth range 5954 to 5964 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow ___ Intrusive ___ Ash ___ Breccia /

Number of Units in Box / Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	15					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag							

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

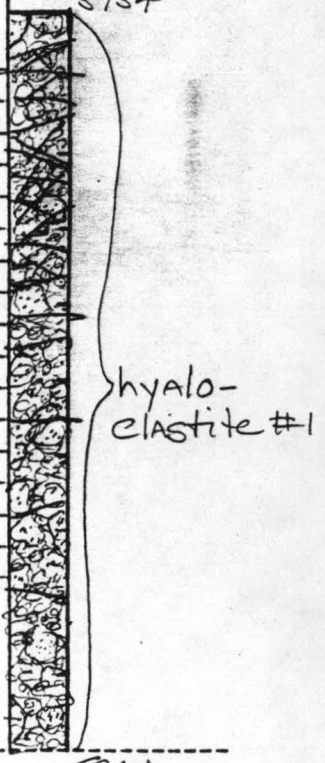
Phenocryst replacements
- Olv -> Clay ___
- Iddingsite ___
- Plag -> Clay ___
- Zeolite ___

Groundmass
- Chlorite ___
- Smectite /

Secondary/Alteration	Fracture Fill	Vesicle Fill (Min.)
Smectite		
Calcite	✓	
Zeolite		
white fibrous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

in voids

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, angular clasts, vesicular, w 15% olivine as phenos & mph, in a matrix which has altered to grn smectite in sm. clasts but remains gray basalt in large clasts, all cemented by a tan carbonate glue.

CORE LOG

BOX # 627 HOLE # 4 Sheet A

Depth range 1819.02 to 1821.77 meters Depth range 5964 to 5973 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive ___ Ash ___ Breccia ___ Pillow/Hyal ✓

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	3					
Shape	S/E-A					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

Smectite ___

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

Vug w/ Smectite (1st), Anhydrite (2nd)

Smectite, Anhy

Calcite fill the interstitia

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite (D) w/ lg. & small clasts. Largest 10-15cm long. The fine grained matrix is altered → smectite.

2° Mineral ø Smectite, Calcite, Anhydrite

CORE LOG

BOX # 628 HOLE # 4 Sheet A

Depth range 1821.8 to 1824.5 meters Depth range 5973 to 5982 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia 1

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R-SR					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv -> clay

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %	?1%					

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

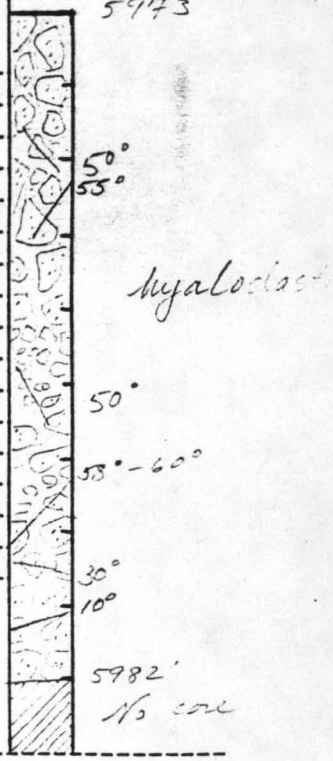
Groundmass
- Chlorite
- Smectite

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9' core loss



CRITICAL FEATURES (description of units or features by number)

1 hyaloclastite w/ matrix of broken 10-15% olivine phenos & augite laths in a grey cohanitic matrix. Vit

CORE LOG

BOX # 629 HOLE # 4 Sheet A

Depth range 1824.51 to 1827.25 meters Depth range 5982 to 5991 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow ___ Intrusive 2,3,4 Ash ___ Breccia 1

Number of Units in Box 4 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓			✓		
micro(<.5 mm)	✓			✓		
Aphyric		✓	✓			
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%	10	–	–	10		
1-5%						
<1%						
Phenos	✓			✓		
mph	✓			✓		
ol-plag						

Comments ___

Plagioclase	1	2	3	4	5	6
>5%				7		
1-5%						
<1%						
Rhombs				✓		
Blades/laths						
mph						

Comments ___

Augite %	1	2	3	4	5	6

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic	✓	✓	✓			
Feldspathic				✓		
Diktytaxitic				✓		

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓4

Iddingsite ___

Plag -> Clay ___

Zeolite ___

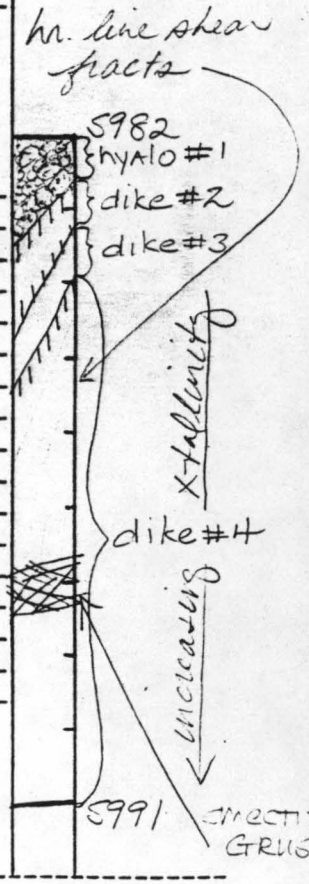
Groundmass

Chlorite ___

Smectite 1

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, amicular, angular clasts, olivine 10% phenos & mph, ol alt blk., in a matrix mostly altered to grn smectite.

2) dike, amicular, aphanitic, gray basalt

3) dike, alt as above

4) dike, amicular, aphanitic at contact grades into holox-talline grd mass with 10% olivine and 7% plag as phenos & mph. Areas of this unit are completely altered to smectite

CORE LOG

BOX # 630 HOLE # 4 Sheet A

Depth range 1827.26 to 1830 meters Depth range 5991 to 6000 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive ✓ Ash ___ Breccia ___

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓10					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase

>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths	✓					
mph						

Comments ___

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

Smectite ___

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' here

Reworked lake almost sand like DISKING common

CRITICAL FEATURES (description of units or features by number)

1) Dike of regions pristine others, altered sand-like. The lithology consists of 10% divine phenocrysts, microphenocrysts in a diktytaxitic matrix. olivines are unaltered.

2° Minerals: SMECTITE

CORE LOG

BOX # 631 HOLE # 4 Sheet A

Depth range 1830 to 1832.8 meters Depth range 6000 to 6009 feet

Logger's Name KE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia 2

Number of Units in Box 2 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—	<1%				
Shape		SR-SA				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	<1-5%	5%				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv → clay

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

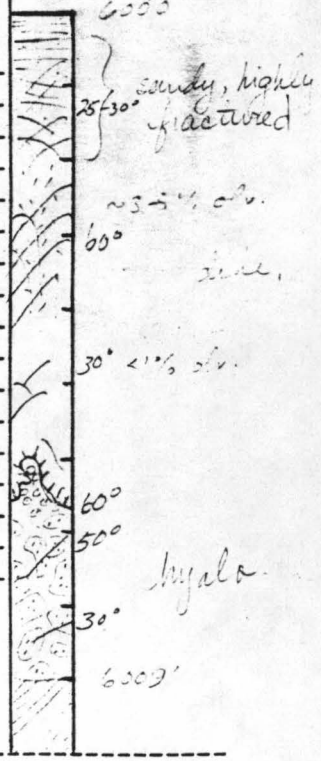
Smectite ✓

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9' core in 3 box



CRITICAL FEATURES (description of units or features by number)

1) dkgy, w/ <1-5% olivine phenos + mph (laths) in a green feldspathic matrix. 2° min: ~3% ves's + pyrite

2) Hyaloclastics w/ clasts of 5% olivine phyric [illegible] in a green feldspathic matrix w/ fine dark sandy matrix

CORE LOG

BOX # 632 75 to 1835 79 HOLE # 4 Sheet A

Depth range 1832 to 1835 meters Depth range 6009 to 6018 feet

FT

Logger's Name _____ Page ___ of ___

Type of Sample: Flow ___ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	10					
Shape	SPH					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments _____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments _____

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

Smectite ___

Secondary/Alteration Min.	Fracture Fill	Ves. fills
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' of Core

CRITICAL FEATURES (description of units or features by number)

Hyaloclastite w/ 5-7% olivine phenocrysts in an aphanitic matrix. The olivines have been altered to clays

2° MINERALS: SMECTITE, Clay (altered glass)

CORE LOG

BOX # 633 49 54 HOLE # 4 Sheet A

Depth range 1835 to 1838 meters Depth range 6018 to 6028 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow 1 Intrusive 2 Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	10	<1				
Shape	SA	R				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓7-10					
1-5%		✓3				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

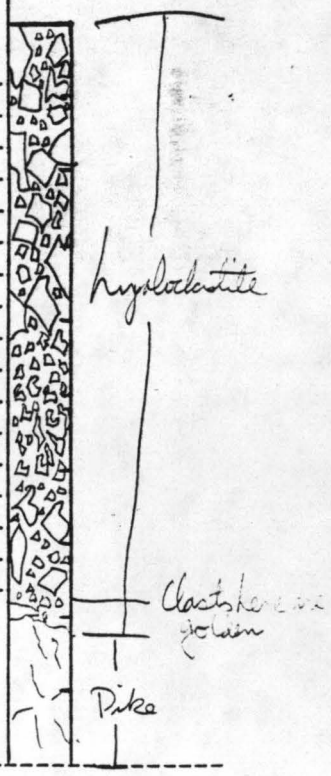
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	1	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	1	
Secondary/Alteration Min.		
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) Hyalodacite w/ 7-10% olivine phenocrysts/microphenocrysts in an aphanitic matrix.

2) Dike w/ 3% olivine as phenocrysts, microphenocrysts in a feldspathic matrix. The dikes top contact is brecciated thus ill defined.

2° Minerals: Smectite, QTZ xtals, Anhydrite

CORE LOG

BOX # 634 HOLE # 4 Sheet A

Depth range 1837.5 to 1841.4 meters Depth range 6028 to 6037.5 feet

Logger's Name AE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay____
- Iddingsite____
- Plag -> Clay____
- Zeolite____

Groundmass
- Chlorite____
- Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9.5' core in box

CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivine phenos + mph in a fine-grained diktytaxitic matrix. 2° mins: smectite, qtz in fractures + pyrite coated in fracture

CORE LOG

BOX # 635 HOLE # 4 Sheet A

Depth range 1841.44 to 1844.33 meters Depth range 6037.5 to 6047 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia 2

Number of Units in Box 2 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	—				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	1	10				
	1-5%						
	<1%						
	Phenos	✓	✓				
	mph	✓	✓				
	ol-plag						
	Comments						
Plagioclase	>5%						
	1-5%	3					
	<1%						
	Rhombs	✓					
	Blades/laths						
	mph						
	Comments						
Augite	%						

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic	✓					

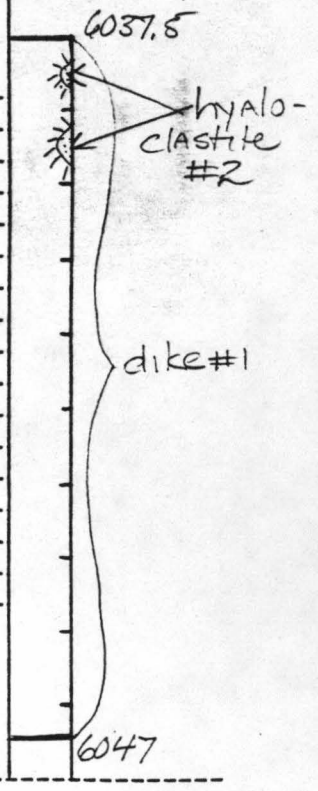
SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic at top of box grades to a micro-holocrystalline matrix w olivine phenos & mph 7%, ol alt blk and plag rhombs 3%. Color of unit grades from gray to lt gray downward thru box

2) hyaloclastite, angular aphanitic clasts, 15% olivine phenos & mph, ol alt blk. in a matrix mostly alt. to gm smectite.

CORE LOG

BOX # 636 HOLE # 4 Sheet A

Depth range 1844.3 to 1846.9 meters Depth range 6047 to 6055.5 feet

Logger's Name KE Page ___ of ___

Type of Sample: Flow ___ Intrusive / Ash ___ Breccia ___

Number of Units in Box / Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

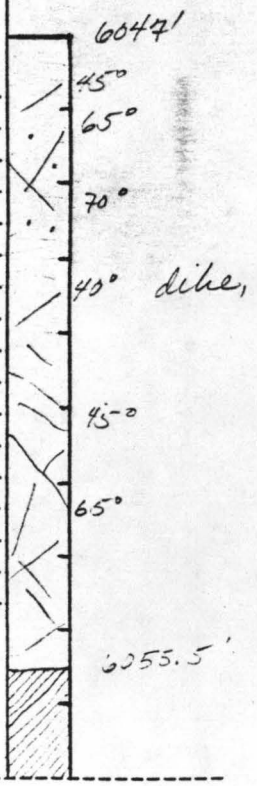
GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

2.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ 2/3% olivine-phenos + mph (alt → clay) in a fine-grained dikty taxitic matrix.

2° mins: amorph. qtz. along fract.
" smectite "

CORE LOG

BOX # 637 HOLE # 4 Sheet A

Depth range 1846.93 to 1849.82 meters Depth range 6055.5 to 6065 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

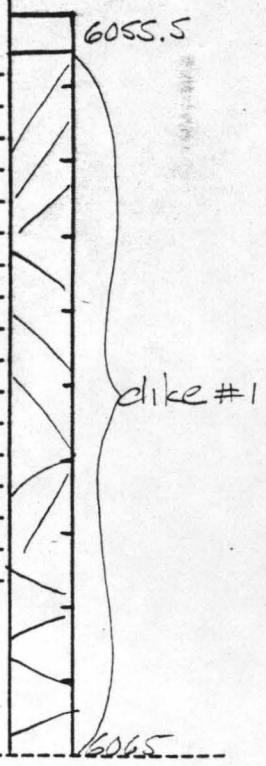
Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

90% hairline shear fracture filled w/ zeolite, 3% silica



CRITICAL FEATURES (description of units or features by number)

1) dike, aphyric, olivine phenos & mph 5%, ol alt. clk, in a feldspathic microx-to fine grain, brown matrix.

CORE LOG

BOX # 638 HOLE # 4 Sheet A

Depth range 1849.83 to 1852.57 meters Depth range 6065 to 6074 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive 13 Ash ___ Breccia ___

Number of Units in Box 3 Clk/Rubble 2 Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	<1	3	<1			
Shape	R	SA	R			
Size(x)	<1	<1	<1			

PHENOCRYSTS(Original mineralogy)

Olivine >5%		✓ 5-7				
1-5%	2 ✓					
<1%			✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%			✓ 3			
<1%						
Rhombs						
Blades/laths			✓			
mph			✓			

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 2

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

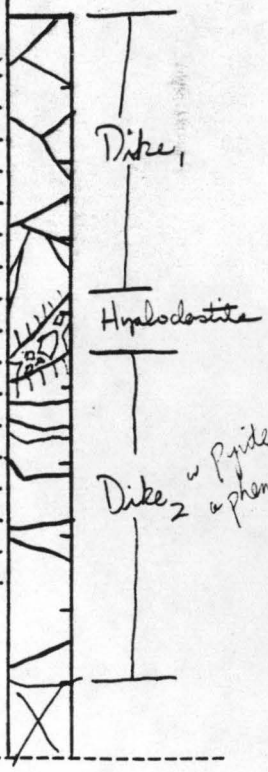
Smectite ___

Secondary/Alteration min.	Fracture Fill	Ves. fill
Smectite	½	½
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9' Lore



CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 3% olivine as phenocrysts, microphenocrysts in a feldspathic groundmass

2) Hyaloclastite w/ 5-7% olivine as phenocrysts, micro phenocrysts in a lt gray matrix

3) Dike w/ 3% Plagioclase as laths, micro laths, Olivine @ <1% as phenocrysts, microphenocrysts and Pyrite <1% (maybe pyrrhotite) in a dk blish feldspathic matrix

2° Minerals: Smectite, Pyrite

CORE LOG

BOX # 639 HOLE # 4 Sheet A

Depth range 1852.57 to 1855.32 meters Depth range 6074 to 6083 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive 1 Ash ___ Breccia ___

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	2					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓3					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

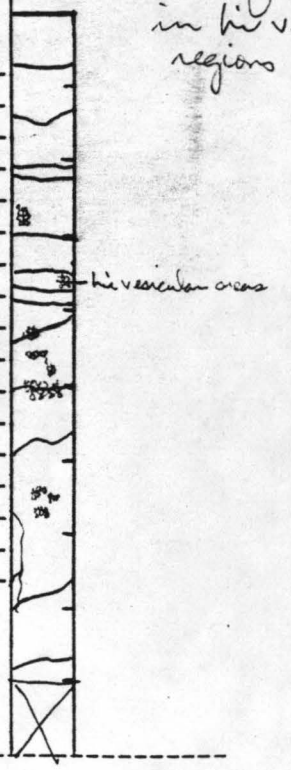
Smectite ___

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

only 9' core

- Calcite found on QTZ xtals
- 2° minerals found in hi ves regions



CRITICAL FEATURES (description of units or features by number)

Dike w/ 3% olivine phenocrysts, microphenocrysts in a diktytaxitic matrix. The matrix is fine grained + sugary. Also there are regions of hi vesicularity.

2° Minerals: QTZ xtals, calcite

CORE LOG

BOX # 640 HOLE # 4 Sheet A

Depth range 1855.31 to 1858.06 meters Depth range 6083 to 6092 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1,3,4 Ash____ Breccia____

Number of Units in Box 4 Clk/Rubble____ Carbonate 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	—		✓		
micro(<.5 mm)	✓			✓		
Aphyric			✓			
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	7			15		
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%	5					
<1%						
Rhombs	✓					
Blades/laths	✓					
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic	—		✓			
Feldspathic	✓			✓		
Diktytaxitic	✓			✓		

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1,4

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

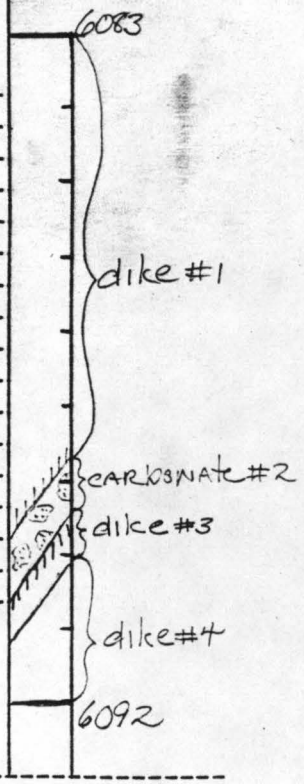
Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, aviscular, olivine phenos & mph 7%, ol. alt. blk, plag rhombs, blades & laths 5% in a microx-talline felds. matrix which grades to aphanitic at contact.

2) carbonate with basalt clasts, angular clasts, olivine 7% as phenos & mph, ol alt blk, in a matrix alt toward gray-grn smectite. All in a carbonate matrix wo visible shell frags.

3) dike, aviscular, aphyric lt. gray basalt. →

CORE LOG

BOX # 641 HOLE # 4 Sheet A

Depth range 1853.1 to 1861.1 meters Depth range 6092 to 6102 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	1	2	3	4	5	6
>5%	7-15%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv -> devitrifying.

Plagioclase	1	2	3	4	5	6
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

	1	2	3	4	5	6
Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay____
- Iddingsite____
- Plag -> Clay____
- Zeolite____

Groundmass
- Chlorite____
- Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

10' core in box

fractured, recipient granulation

dike,

CRITICAL FEATURES (description of units or features by number)

dike, picritic 7-15% olivine phenos - mph textures same - mph in a fine grained matrix. On the upper unit (first 1') the dike is competent, somewhat fractured, and granulation is incipient, with not much separation (because grades and dike has not fallen completely apart).

CORE LOG

BOX # 2-12 HOLE # 4 Sheet A

Depth range 1861.1 to 1863.9 meters Depth range 6102 to 6111 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1,2,4 Ash____ Breccia 3

Number of Units in Box 4 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %	—	4%	—	<1%		
Shape		R-SA		R-SA		
Size(x)		<1mm		<1mm		

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15-20%		15%			
1-5%		✓		✓		
<1%						
Phenos	✓	✓	✓	✓		
mph	✓	✓	✓	✓		
ol-plag						

Comments

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic		✓	✓	✓		
Feldspathic	✓					
Diktytaxitic				✓		

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

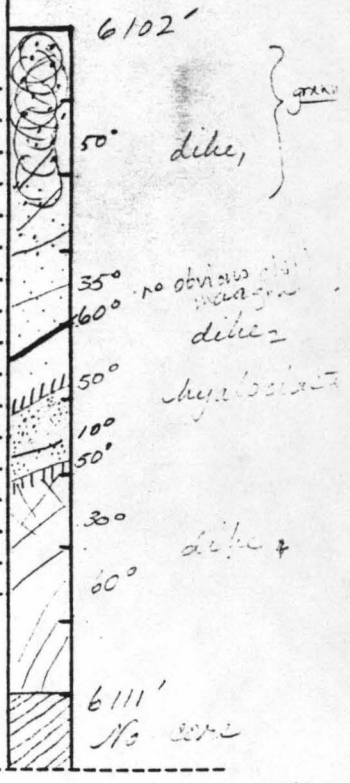
Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		✓
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic w/ <1% olivine phenos + mph in a gray feldspathic matrix. Throughout the unit in this dike, it is fractured and filled with

2) dike$_2$ w/ <1% olivine phenos + mph in a light gray aphanitic matrix. Neither dike, nor dike$_2$ has a chill margin.

3) hyalo clastite$_3$ w/ 15% olivine phenos + mph in clasts surrounded by dark gray aphanitic matrix.

4) dike$_4$ w/ <1% olivine-phenos + mph in a light gray aphanitic matrix which becomes a fine diktytaxitic matrix away from the contact w/ unit 3. Possibly related to dike 2.

CORE LOG

BOX # 643 HOLE # 4 Sheet A

Depth range 1863.85 to 1866.96 meters Depth range 6111 to 6121 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro(<.5 mm)						
Aphyric	✓					
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

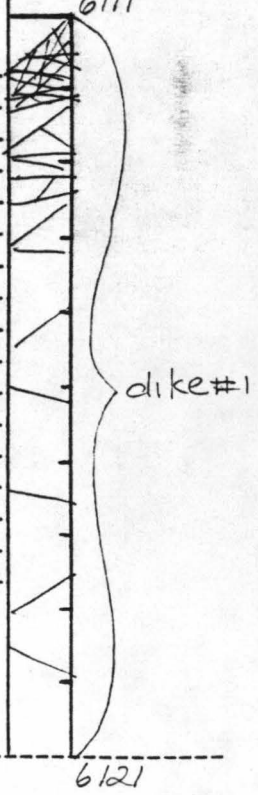
Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, micro-crystalline feldspar. gray basalt.

CORE LOG

BOX # 644 HOLE # H Sheet A

Depth range 1866.9 to 1869.7 meters Depth range 6121 to 6130 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1, 2 Ash____ Breccia____

Number of Units in Box 2 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	—				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%		1%				
<1%	✓					
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite %						

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

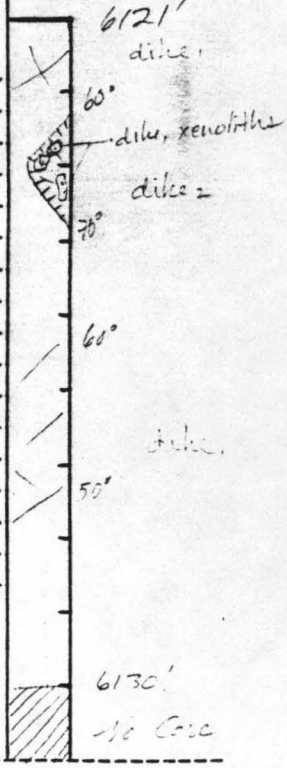
Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivine phenocrysts in a fine diktytaxitic matrix

2) dike, w/ 1% olivine phenocrysts in a fine aphanitic matrix. Intrudes dike 1.

amorph. silica in fracture

CORE LOG

BOX # 645 HOLE # 4 Sheet A

Depth range 1869.7 to 1872.7 meters Depth range 6130 to 6140 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow ____ Intrusive 1,2,3,4 Ash ____ Breccia 3

Number of Units in Box 4 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega-(>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %	—	—	—	—		
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	✓	✓	✓	✓		
Phenos	✓	✓	✓	✓		
mph	✓	✓	✓	✓		
ol-plag						

Comments olv→clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Augite %						

Comments ____

GROUNDMASS (original)

Aphanitic	✓	✓		✓		
Feldspathic	✓		✓			
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ____
- Plag -> Clay ____
- Zeolite ____

Groundmass
- Chlorite ____
- Smectite ____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

91 core in box

11 core loss

CRITICAL FEATURES (description of units or features by number)

1) dike1 w/ ~1% olivine phenos + mph in a fine grey feldspathic matrix

2) dike2 w/ <1% olivine phenos + mph in a fine grey matrix

3) dike3 same as dike1 in composition, brecciated and altered. Lower part of dike is fg. Anhydrite filling cracks.

4) dike4 w/ composition similar to dike2. This dike intruded dike3.

CORE LOG

BOX # 646 HOLE # 4 Sheet A

Depth range 1872.7 to 1875.8 meters Depth range 6140 to 6150 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia 2

Number of Units in Box 3 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓			
micro(<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	—	<1%	—			
Shape		SR-A				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine	>5%					
	1-5%	1-3%				
	<1%	✓	✓			
Phenos		✓	✓	✓		
mph		✓	✓	✓		
ol-plag						

Comments

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite	%					

GROUNDMASS (original)

Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

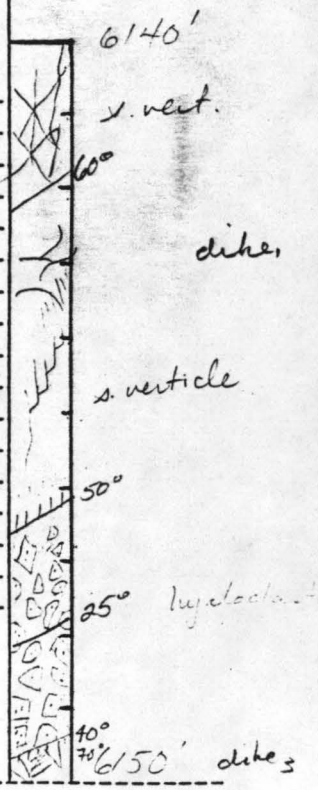
Smectite ✓

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite	✓	
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

10' core in 6 box



CRITICAL FEATURES (description of units or features by number)

1) dike, w/<1% olivine phenos + mph in a grey aphanitic matrix.

2) hyaloclastite, w/1-3% olivine phenos + mph in a grey aphanitic matrix (clasts). Clasts surrounded by glassy - black basalt and not calcitic.

3 same as dike,

CORE LOG

BOX # 647 HOLE # 4 Sheet A

Depth range 1875.75 to 1878.50 meters Depth range 6150 to 6159 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive / Ash ___ Breccia ___

Number of Units in Box / Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths						
mph	✓					

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

Smectite ___

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9'

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 1% olivine as phenocrysts, microphenocrysts in a feldspathic matrix. <1% plagioclase microlaths present. Towards dike center matrix became diktytaxitic & ground mass coarser

2° MINERALS: Smectite

CORE LOG

BOX # 648 HOLE # 4 Sheet A

Depth range 1878.50 to 1881.24 meters Depth range 6159 to 6168

Logger's Name FT. Page ___ of ___

Type of Sample: Flow 1 Intrusive 2 Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

COM

-9 here

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1	<1				
Shape	R	R				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓1					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths	✓					
mph	✓					

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓	✓				
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration		
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

distinct color Δ here wacke→ gray, No chill margin - displacement devices here

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 1% olivine as phenocrysts, microphenocrysts & <1% Plagioclase as microlaths in a feldspathic groundmass.

2) Pillow? w/ <1% olivine as phenocrysts, mph in a well crystallized feldspathic matrix.

2° Minerals ○ Smectite, Calcite, Qtz xtals

CORE LOG

BOX # 649 HOLE # 4 Sheet A

Depth range 1881.2 to 1883.8 meters Depth range 6168 to 6176.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow ____ Intrusive 1 Ash ____ Breccia 2

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	—				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%		3%				
<1%	✓					
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % | | | | | | |

GROUNDMASS (original)

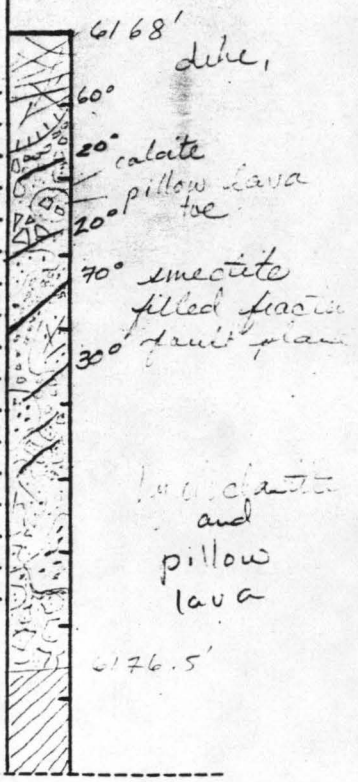
Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration min.		
Smectite	✓	✓
Calcite	✓	✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

8.5' core in box

* major fracture in hyaloclastic 70° dip fault?



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ <1% olivine phenos + augite in a grey aphanitic matrix

2) hyaloclastite and pillow lava

aphanitic matrix (the toes)

calcite, smectite,

calcite, zeolite.

w/ occasional toe of pillow lava

CORE LOG

BOX # 650 HOLE # 4 Sheet A

Depth range 1883.8 to 1936.7 meters Depth range 6176.5 to 6186 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow ✓ Intrusive ____ Ash ____ Breccia ✓

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	1%					
Shape	R-SA					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments alt to clay

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

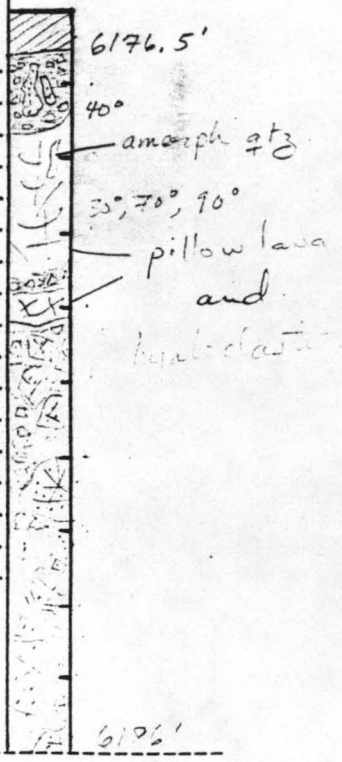
Chlorite ____

Smectite ____

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1 hyaloclastite and pillow lavas w/ 3-5% olivine phenos + mph (→ clay) in a gray - (altering) green aphanitic matrix. Both clasts + pillows have essentially the same mineralogy. The matrix of hyaloclastite is a green sandy mud. The clasts are angular w/ glassy chilled margins (also turning green). Amorphous quartz fills cavities between clasts + in fractures of pillow lavas.

CORE LOG

BOX # 65 HOLE # 2 Sheet A

Depth range 1886.7 to 1889.5 meters Depth range 6186' to 6195' feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow / Intrusive ____ Ash ____ Breccia /

Number of Units in Box / Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R-Sh					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

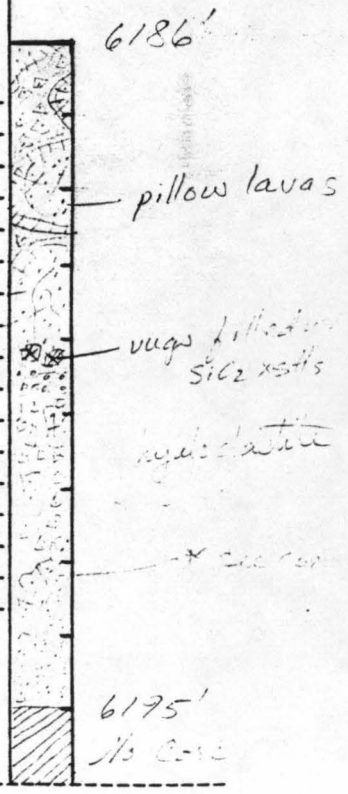
Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fractured Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite	✓	
Calcite		✓
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony	/	
Crystals		
Pyrite	/	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' core in box.

alternating colors in matrix
R = green
G = green
W = white
Gy = grey



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite + pillow lavas ± w/ 3-5% olivine phenos + mph (+ plag laths, clasts + pillows ± vesicular, green smectite + white fiberous zeolites ± analcime, chabazite, MgOH, chalcedony, pyrite, epidote, gypsum, anhydrite, calcite veins, pyrite ± hematite locally same.

smectite
Vugs (2-5 mm diam.) filled w/ 3-5% smectite, calcite veins, pyrite ± hematite

CORE LOG

BOX # 552 HOLE # 4 Sheet A

Depth range 1889.5 to 1892.2 meters Depth range 6195 to 6204 feet

Logger's Name PE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R-SR					
Size(x)	4mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

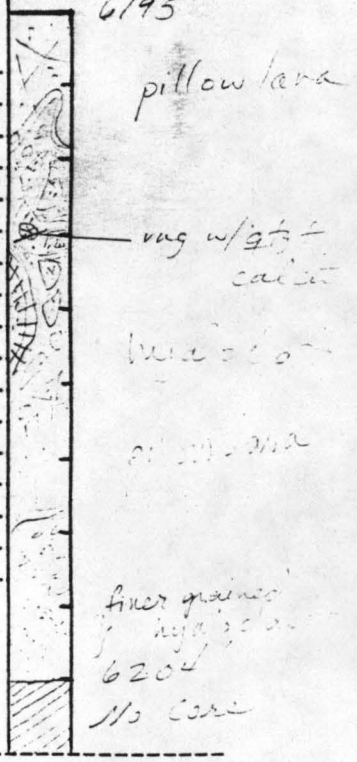
Groundmass

Chlorite

Smectite

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite w/ pillow lava ~3-5% olivine phenocrysts in a grey aphanitic matrix. Clast (Continued) + pillow have green altered glassy margins. Clasts subangular to subrounded. Clasts range from 1-

2° min: gtz, smectite and calcite.

CORE LOG

BOX # 653 HOLE # 4 Sheet A

Depth range 1892.2 to 1894.97 meters Depth range 6204 to 6213 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 7

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R-SR					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine	>5%						
	1-5%	3-5%					
	<1%						
Phenos		✓					
mph		✓					
ol-plag							

Comments → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay /

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

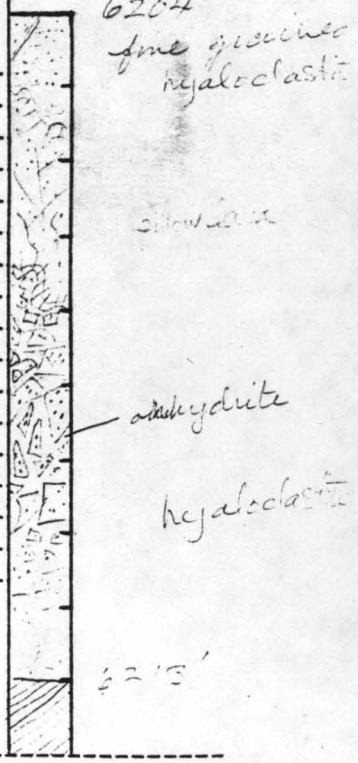
Smectite

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

6212': "anhydrite" = anhydrite RE 12/13/91

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite and pillow [illegible] in a grey aphanitic matrix, [illegible] margins on both clasts + pillows) [illegible]

[illegible] anhydrite, pyrite

CORE LOG

BOX # 654 HOLE # 4 Sheet A

Depth range 1894.97 to 1897.7 meters Depth range 6213 to 6222 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<2%					
Shape	2-5%					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments → clay

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite

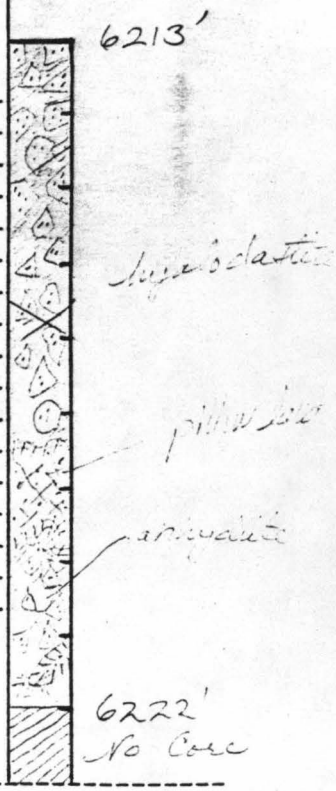
Smectite

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	

Other(describe)

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite & pillow lava w/ 3-5% olivine phenos + mph in a grey aphanitic matrix. Clasts are angular. Lithology of pillows & clasts basically the same. Chill margins massive & altering green. Matrix around clasts grey-green, sandy texture.

2° min: anhydrite

CORE LOG

BOX # 655 HOLE # 4 Sheet A

Depth range 1897.7 to 1900.6 meters Depth range 6222 to 6231.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	1					
micro(<.5 mm)	1					
Aphyric						
Vesicles: %	<1%					
Shape	R-SR					
Size(x)	<1cm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite

Secondary/Alteration	Fracture Fill	Ves. fill.
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

9.5' core run

CRITICAL FEATURES (description of units or features by number)

1) Palagonite - ~~with~~ ~~3-5%~~ ~~clay~~ ~~phenos~~ ~~and~~ ~~opal~~ ~~in~~ ~~a~~ ~~phanitic~~ matrix, clasts ~~mainly~~ ~~glassy~~ ~~with~~ ~~thin~~ ~~alteration~~ ~~rinds~~, matrix ~~is~~ ~~palagonite~~ ~~and~~ ~~clay~~

2) ~~minor~~ anhydrite, ~~smectite~~

CORE LOG

BOX # 656 HOLE # 4 Sheet A

Depth range 1900.6 to 1903.7 meters Depth range 6231.5 to 6241.5 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R-Sp					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-7%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments	o → clay					
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

10' core in box

6231.5'

Jugoodoit-?

6241.5'

CRITICAL FEATURES (description of units or features by number)

1 Diktytaxitic subaphyric basalt w/ 3-7% olivine phenocrysts in a gray aphanitic matrix. Vesicles are filled with calcite, analcime, chabazite, and subordinate dark-light green, green-brown smectite, anhydrite, and zeolite

CORE LOG

BOX # 657 HOLE # 4 Sheet A

Depth range 1903.66 to 1906.55 meters Depth range 6241.5 to 6251 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow 2 Intrusive ___ Ash ___ Breccia 1

Number of Units in Box 2 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	–	–				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10	10				
	1-5%						
	<1%						
Phenos		✓	✓				
mph		✓	✓				
ol-plag							

Comments ___

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

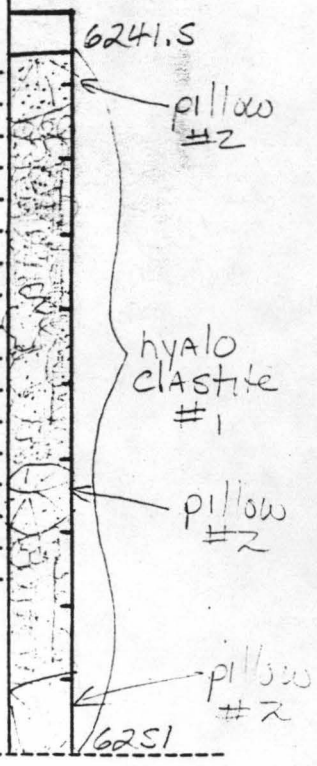
Chlorite ___

Smectite #1

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

irregular vuggy

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, anuscular angular clasts, olivine 10% as >5% & mph, ol alt blk. Small clasts (<1cm) have completely altered to grn smectite, large ones are still gray basalt all cemented by a blk smectite mtx.

2) pillows, anuscular, >5% phenos & mph 10%, ol alt blk, in a gray basalt matrix. Voids filled w amor qtz or anhydrite.

CORE LOG

BOX # 658 HOLE # 4 Sheet A

Depth range 1906.55 to 1909.30 meters Depth range 6251 to 6260 feet

Logger's Name EN Page ___ of ___

Type of Sample: Flow 2 Intrusive 3 Ash ___ Breccia 1

Number of Units in Box 3 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric			✓			
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	10	10				
	1-5%						
	<1%						
	Phenos	✓	✓				
	mph	✓	✓				
	ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay 1,2

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

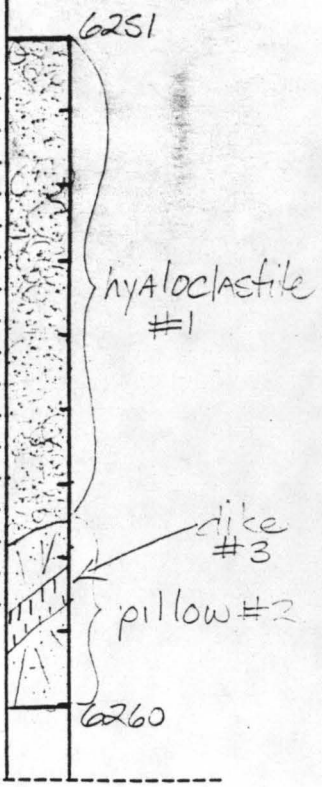
Chlorite ___

Smectite 1,2

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	

Other(describe)

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, granular, gray to clasts, olivine phenos & mph 10%, sl alt blk. Small clasts (<1cm) completely alt to grn smectite (chlorite?), by one alt'd gray basalt, all cemented by blk smectite matrix.

2) pillow, aphyric, olivine phenos & mph 10%, sl alt blk in a gray basalt matrix.

3) dike, aphanitic aphyric dk gray basalt

CORE LOG

BOX # 659 HOLE # 4 Sheet A

Depth range 1909.30 to 1912.04 meters Depth range 6260 to 6269 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow 1, 3 Intrusive ____ Ash ____ Breccia 2, 4

Number of Units in Box 4 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓	✓		
micro(<.5 mm)	✓	✓	✓	✓		
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10	10				
1-5%						
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓		
Feldspathic						
Diktytaxitic	✓		✓			

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

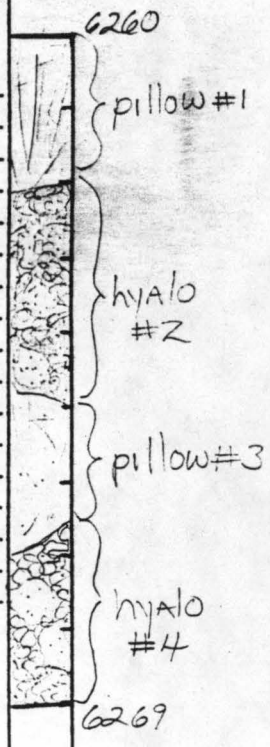
Chlorite (?) ____

Smectite ✓ ____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

Pillows show dikty areas



CRITICAL FEATURES (description of units or features by number)

1) pillow, avesicular, olivine phenos & mph 10%, ol alt blk, in a gray basalt matrix.

2) hyaloclastite, avesicular, angular clasts, olivine phenos & mph 10%, ol alt blk, in a gray basalt matrix cemented by blk smectite

3) pillow, avesicular, olivine mph 10%, ol alt blk, in a lt gray basalt matrix

4) hyaloclastite, avesicular, angular clasts, olivine mph 15% →

CORE LOG

BOX # 620 HOLE # 4 Sheet A

Depth range 1912. to 1914.8 meters Depth range 6269 to 6278 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 2 Ash____ Breccia 1

Number of Units in Box 2 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	<1%				
Shape		R-SR				
Size(x)		<1mm				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	5%	1-3%				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments Olv → clay (unit 1)

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic		✓				
Diktytaxitic						

SECONDARY FEATURES

	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite	* ✓	
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓2	
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9' core in box

* "Barnacle"-like white, planar zeolite, building

zeolite

basaltic

65° - 6269'

65°

6278'

CRITICAL FEATURES (description of units or features by number)

CORE LOG

BOX # 661 HOLE # 4 Sheet A

Depth range 1914.8 to 1915.5 meters Depth range 6278 to 6257 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1,2 Ash____ Breccia____

Number of Units in Box 2 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	1-2%	—				
Shape	R-A					
Size(x)	1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%						
<1%	<<1%					
Phenos	✓					
mph	✓					
ol-plag						

Comments

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %	1-2%					

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay
- Iddingsite
- Plag -> Clay
- Zeolite

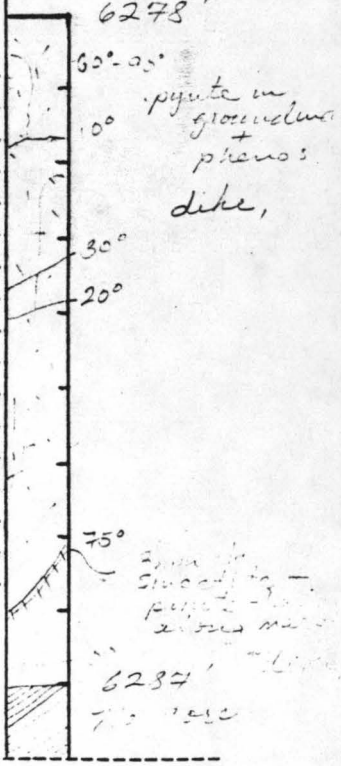
Groundmass
- Chlorite
- Smectite

Secondary/Alteration min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		3
Amorphous		
Chalcedony		
Crystals		
Pyrite	1/2	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

9' core run [illegible]



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ 1-2% augite [illegible]

2) dike, w/ <2% [illegible]

CORE LOG

BOX # 662 HOLE # 4

Depth range 1917.54 to 1920.43 meters Depth range 6287 to 6298.5 feet

Logger's Name FT Page ___ of ___ Sheet A

Type of Sample: Flow ___ Intrusive 1 Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble 2 Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	<1	<1				
Shape	R	R				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓1					
<1%		✓1				
Phenos	✓	✓				
mph	✓	✓				
cl-plag						

Comments ___

Plagioclase						
>5%						
1-5%	✓1					
<1%		✓				
Rhombs	✓					
Blades/laths	✓	✓				
mph						

Comments ___

Augite	%	1					

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

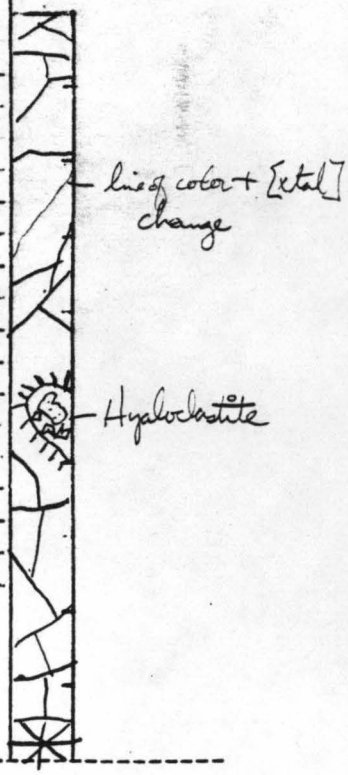
Chlorite ___

Smectite ___

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fibrous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

-9.5' lost



CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 1% olivine as phenocrysts, microphenocrysts, 1% Plagioclase as Rhombs, laths, and microphenocrysts plus 1% Augite as elongate phenocrysts + twins in a well crystallized matrix.

2) Hyalodastite w/ <1% olivine as phenocrysts, microphenocrysts + Plagioclase as microlaths in an aphanitic matrix.

2° mineral: Smectite

CORE LOG

BOX # 663 HOLE # 4

Depth range 1920.43 to 1922.87 meters Depth range 6296.5 to 6304.5 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	4					
Shape	2					
Size(x)	1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

2' of Core

Some Olivine still Pristine

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 15% phenocrysts, microphenocrysts in a feldspathic matrix.

The lower portion of the core is sandy consistency.

2° Minerals & Clay (altered matrix + olivines)

CORE LOG

BOX # 664 1922.87 to 1925.62 HOLE # 4 Sheet A

Depth range 1922.87 to 1925.62 meters Depth range 6304.5 to 6313.5 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow ____ Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

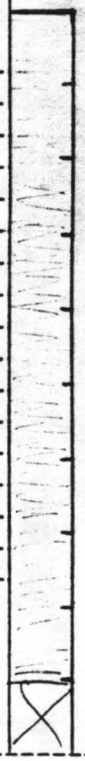
Chlorite ____

Smectite —

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9' of Core



CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 15% olivine as phenocrysts, microphenocrysts in a sandy matrix (formerly feldspathic). Most of the olivine are altered.

2° Minerals: Clay (altered olv), Smectite

CORE LOG

BOX # 665 HOLE # 4 Sheet A

Depth range 1925.62 to 1928.21 meters Depth range 6313.5 to 6322 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive 1 Ash ___ Breccia ___

Number of Units in Box 1 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

COMMENTS

8.5'

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓15+20					
1-5%						
<1%	✓					
Phenos						
mph	✓					
ol-plag						

Comments ___

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay X

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

Smectite ___

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

- green sand in bag

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 15% - 20% olivine as phenocrysts, microphenocrysts in a sand matrix (formerly feldspathic)

Olivine are altered.

2° minerals: Smectite, Clay (altered olv.)

CORE LOG

BOX # 666 HOLE # 4 Sheet A

Depth range 1928.21 to 1931.26 meters Depth range 6322 to 6332 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive 1 Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓25					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic						
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

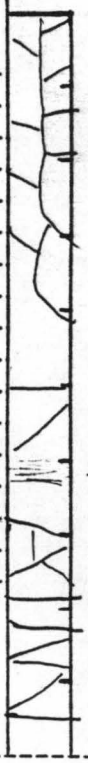
Groundmass

Chlorite ___

Smectite ✓

Secondary/Alteration min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 25% olivine as phenos-5 microphenocrysts in a well crystallized matrix. Some/many olivine are still pristine.

2° Minerals: minor Smectite

CORE LOG

BOX # 667 HOLE # 4 Sheet A

Depth range 1931.45 to 1934.31 meters Depth range 6332 to 6342 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ___ Intrusive / Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	2-15-20					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite	✓	
Secondary/Alteration Min.		
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) Dike of 15-20% divine phenocrysts, microphenocrysts in a feldspathic matrix. The dike margins are much less phyric than the dikes core.

2° Minerals: minor Smectite

CORE LOG

BOX # 163 HOLE # 4 Sheet A

Depth range 1934.3 to 1937.1 meters Depth range 6342 to 6351 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	1-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments Olv -> Clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

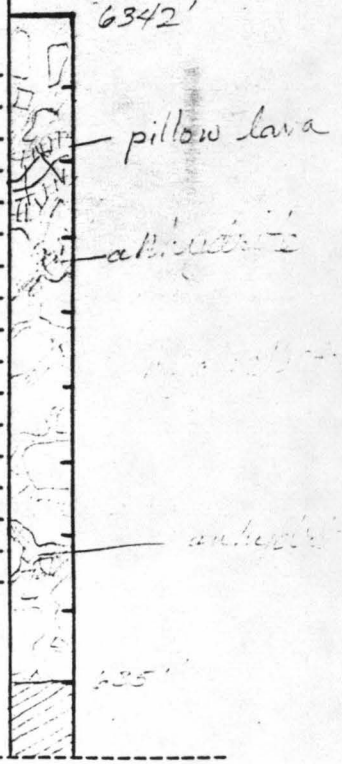
Chlorite

Smectite

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)	fractures + voids	

COMMENTS

5' [illegible] in box



CRITICAL FEATURES (description of units or features by number)

[illegible] diabase 1-5% [illegible]

aphanitic matrix, [illegible] by other grains (olivine, [illegible]), [illegible] grained [illegible]. [illegible] filling fractures + voids.

A small [illegible] in the upper portion. [illegible] lithology.

CORE LOG

BOX # 669 HOLE # 4 Sheet A

Depth range 1937.1 to 1939.8 meters Depth range 6351 to 6360 feet

Logger's Name RE Page ___ of ___

Type of Sample: Flow 2 Intrusive ___ Ash ___ Breccia 1, 2

Number of Units in Box 2 Clk/Rubble ___ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	—				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine						
>5%						
1-5%	3%	1-3%				
<1%						
Phenos	✓	✓				
mph		✓				
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite	%					

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ___

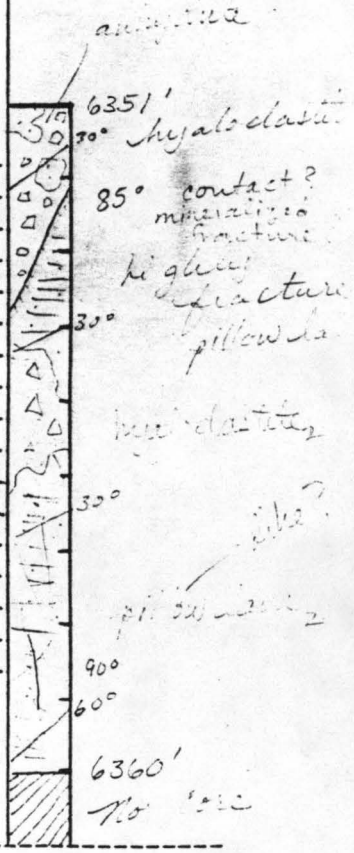
Smectite ___

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		*
Amorphous		
Chalcedony		
Crystals		
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe)		

6352': "anhydrite?" = quartz, anhydrite plus trace of something else. RE 12/13/91

COMMENTS

9' core in box



CRITICAL FEATURES (description of units or features by number)

CORE LOG

BOX # 676 HOLE # 1 Sheet A

Depth range 1939.8 to ____ meters Depth range 6360 to 6370 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	✓					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7%					
1-5%						
<1%	✓					
Phenos	✓					
mph	✓					
ol-plag						

Comments olv -> clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % ____

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ✓?

Smectite ✓

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		✓
Zeolite	✓	✓
white fiberous	✓	
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

6368-70': "smectite?" = clay

RE 12/13/91

COMMENTS

10' [illegible] N6270

* Sampled: [illegible] plagioclase-phyric [illegible] Sparse [illegible] (< 1% of view) min. [illegible] of [illegible] lava. Still smectite? 6360' HN2-3

CRITICAL FEATURES (description of units or features by number)

1) pillow lava, [illegible] phenos - sparse in a medium [illegible] aphanitic matrix

[illegible] smectite, fibrous [illegible] zeolite (chabazite?) dark stained brown

[illegible] fracture [illegible] white

CORE LOG

BOX # 671 HOLE # 4 Sheet A

Depth range 1942.85 to 1945.89 meters Depth range 6370 to 6380 feet

Logger's Name EAJ Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	15					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag		✓					

Comments

Plagioclase							
	>5%						
	1-5%						
	<1%						
Rhombs							
Blades/laths							
mph							

Comments

Augite	%						

GROUNDMASS (original)

Aphanitic							
Feldspathic	✓						
Diktytaxitic	✓						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

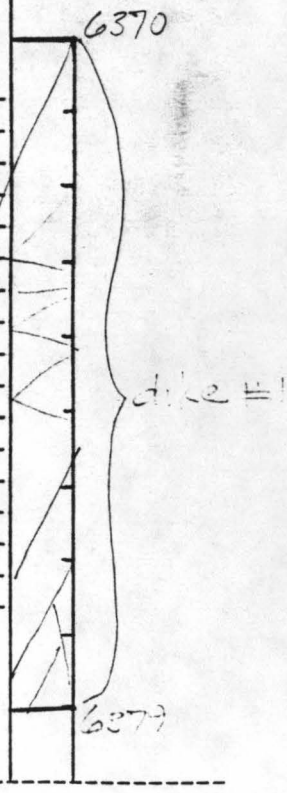
Chlorite

Smectite

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS



CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, olivine phenos, mph, and ol-plag crystals 15% in a ~~a~~ diktytaxitic, feldspathic, microporphyritic lt. gray matrix. Olivine alt bck.

CORE LOG

BOX # 672 HOLE # 4 Sheet A

Depth range 1945.57 to 1948.49 meters Depth range 6379 to 6388.5 feet

Logger's Name EN Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	16					
	1-5%						
	<1%						
Phenos		✓					
mph		✓					
ol-plag		✓					

Comments____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite	%					

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) dike, aphanitic, olivine phenos, mph. ol-plag intergrowths 15%, ol alt blk, in a diktytaxitic, feldspathic, microx-talline lt gray matrix. Slight increase in alteration downward thru box.

THIN SKN.
got one

CORE LOG

BOX # 673 HOLE # 4 Sheet A

Depth range 1921.5 to 1950.7 meters Depth range 6388.5 to 6396 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-15%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite ?
- Smectite ✓

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite XRD	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		

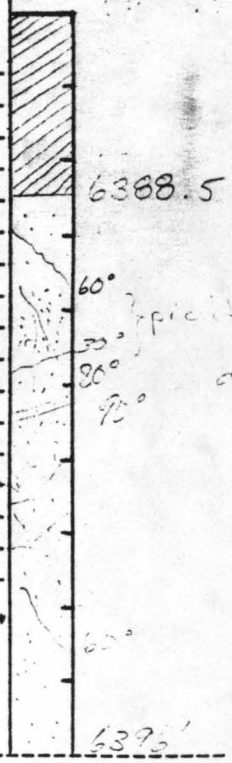
Other(describe)

6391': "black 'slickensided' mineral" = Chlorite/smectite. RE 12/13/91 (80%)

COMMENTS

7.5' core in box

* Excellent example of smectite-chlorite clay mineral.



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ 5-15% olivine phenos + mph in a med. grey microcrystalline feldspathic matrix.
Olivine phenos → clay. Fractures are lined w/ smectite-chlorite (?) clays. Groundmass is also altered to clay.
Is patchy pyritic

CORE LOG

BOX # 64-1 HOLE # 4 Sheet A

Depth range 1953.78 to 1953.52 meters Depth range 6410 to 6405 feet

Logger's Name EH Page 1 of 2

Type of Sample: Flow____ Intrusive 1 Ash____ Breccia____

Number of Units in Box 1 Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic	✓					

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite____

Plag -> Clay____

Zeolite____

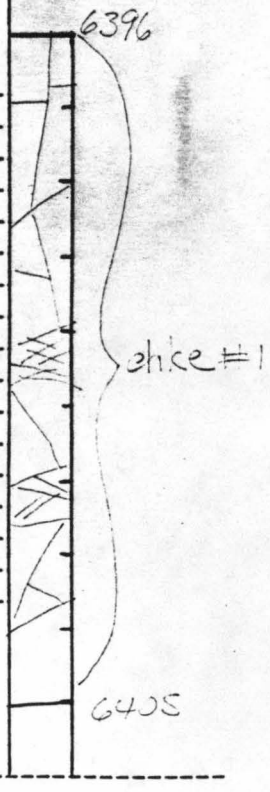
Groundmass

Chlorite____

Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS



CRITICAL FEATURES (description of units or features by number)

Dense, porphyritic olivine phenos, mph, pl-plag intergrowths 15% olivine, intersertal to subophitic, mesostasis with altered matrix

CORE LOG

BOX # 675 HOLE # 4 Sheet A

Depth range 1955.3 to 1956.2 meters Depth range 6405 to 6414.5 feet

Logger's Name FT Page 1 of ____

Type of Sample: Flow ____ Intrusive 1 Ash ____ Breccia ____

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓15					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %						

GROUNDMASS (original)

Aphanitic						
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 15% olivine as phenocrysts, microphenocrysts in a well crystallized charcoal gray feldspathic matrix.

2° Smectite, Clay (altered olivine)

CORE LOG

BOX # 676 HOLE # 4 Sheet A

Depth range 1956.4 to 1959.3 meters Depth range 6414.5 to 6424 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 2 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓	✓				
micro(<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	—	—				
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	10-15%					
1-5%	3-5%					
<1%	✓					
Phenos	✓	✓				
mph	✓	✓				
ol-plag						

Comments olv -> clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic		✓				
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite ?
- Smectite ✓

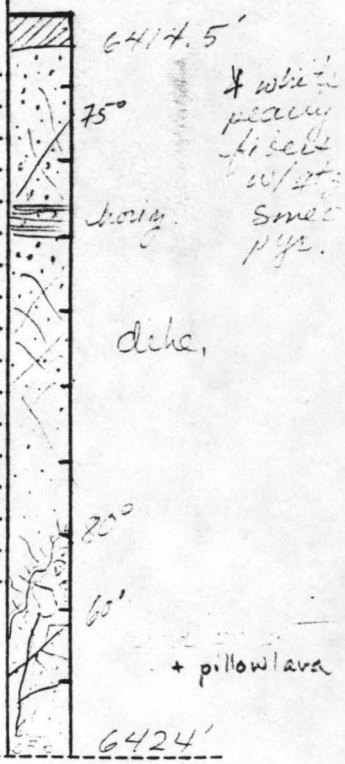
Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		✓
green	✓	
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	*	
Epidote		
Gypsum		
Anhydrite		

Other(describe)
* pyrite-related ... w/ qtz, smect, zeol?

COMMENTS

9.5' core in box

* Smeared reddish material in vesicles, fractures and groundmass, also associated with zeolites, smectite, pyrite, quartz, chalcedony, and calcite.



CRITICAL FEATURES (description of units or features by number)

1) dike, w/ 10-15% plag phenocrysts + olv (now clay and zeolite) in a fine crystalline holocrystalline matrix.

2) hyaloclastite and pillow lava ... with abundant plagioclase phenocrysts - mafic (now clay) in a med. gray aphanitic matrix. ... vesicles, ... fractures ... with a gray matrix.

CORE LOG

BOX # 677 1959.09 to 1962.07 HOLE # 4 Sheet A

Depth range 1959 to 1962 meters Depth range 6424 to 6433 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 7 Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SR-SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	✓					
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ✓

Smectite ✓

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite	XRD ✓	

Other(describe)

6424-33': "anhydrite" = anhydrite confirmed by XRD. RE. 12/13/91

COMMENTS

9' here

- calcite -> Qtz -> Pyr. is the metallic, mineral here pyrite. (Pyr)

Pillow fragment w/vesicles Core

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite w/ PILLOWS 1-2% w/ 5% olivine as phenocrysts, microphenocrysts in an aphanitic, matrix dark gray in color.

25° Smectite, Qtz, Anhydrite XTALS, Pyrite(?)

CORE LOG

BOX # 678 .07 HOLE # 4 Sheet A

Depth range 1962 to 1964.81 meters Depth range 6433 to 6442 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3					
<1%						
Phenos						
mph						
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ___
- Plag -> Clay ___
- Zeolite ___

Groundmass
- Chlorite ✓
- Smectite ✓

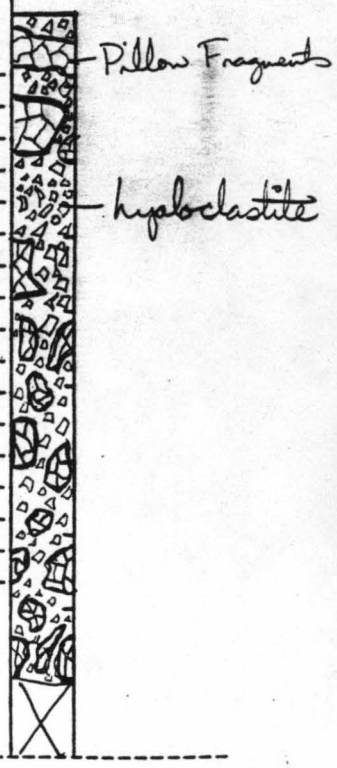
Secondary/Alteration	Fracture Fill	Ves. fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote	✓	
Gypsum		
Anhydrite		

Other(describe)
Natrolite
Albite

COMMENTS

- ? Here

Albite?



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite w/ Pillows containing 5% divine phenocrysts, micro phenocrysts (altered) in an aphanitic matrix. The hyaloclastite is altered to smectite/chlorite.

? Minerals: Smectite, Qtz xtals, epidote, Natrolite

CORE LOG

BOX # 679 HOLE # 7 Sheet A

Depth range 1964.81 to 1967.56 meters Depth range 6442 to 6451 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric	✓					
mega (>.5 mm)	✓					
micro(<.5 mm)						
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓ 5-7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass ✓

Chlorite ___

Smectite ✓

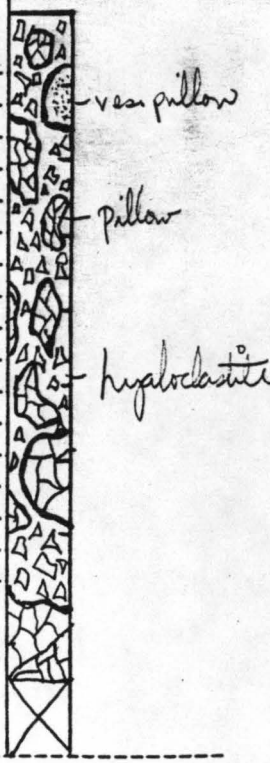
Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite		
Epidote		
Gypsum		
Anhydrite		

Other(describe)

COMMENTS

4' of Core here

- Vesicular pillow interior seen here



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite + Pillows w/ 5-7% olivine as phenocrysts, microphenocrysts in a dark gray aphanitic matrix. Olivine is altered → clay. Hyaloclastite region is altered to green smectite + chlorite

2° Minerals: Qtz xtals, Smectite, chlorite, clay (altered), Calcite

CORE LOG

BOX # 680 HOLE # 4 Sheet A

Depth range 1967.6 to 1970.6 meters Depth range 6451 to 6461 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %						
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments olv → clay

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	?	
Epidote		
Gypsum		
Anhydrite	✓	
Other(describe) x pyrrhotite		

COMMENTS

10' core in box

* Good example of vesicle rich core of pillow lava.

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite, and pillow lava, w/5-7% olivine phenos + mph in a grey aphanitic matrix. Both lithologies basaltic in name. 80% of hyaloclastite matrix + clasts altered.

2° min: qtz xstls, smectite, anhydrite, pyrite? pyrrhotite

CORE LOG

BOX # 681 HOLE # 4 Sheet A

Depth range 1970.6 to 1973.4 meters Depth range 6461 to 6470 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 2

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	3-5% ✓					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % 1%? | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ____

Secondary/Alteration min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite	*	✓
Epidote		✓
Gypsum		
Anhydrite	✓	

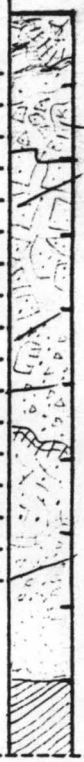
Other(describe)

COMMENTS

9' core in box

* terraced pyrite

Is the pyrite growing or decomposing?



CRITICAL FEATURES (description of units or features by number)

1% ? augite ?

1) hyalodastite, & pillow lava w/ 3-5% olivine(→clay) phenos & mph in a med grey - pale red fine grain aphanitic matrix. Sandy areas in hyalodastite.

2° min: qtz, pyrite?, anhydrite, smectite, epidote.

CORE LOG

BOX # 682 35 .10 HOLE # 4 Sheet A

Depth range 1973 to 1976 meters Depth range 6470 to 6479 feet

Logger's Name FT Page 1 of 2

Type of Sample: Flow____ Intrusive____ Ash____ Breccia____

Number of Units in Box____ Clk/Rubble____ Carbonate____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SR-SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	✓5-7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments____

Augite % | | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay____

Iddingsite____

Plag -> Clay____

Zeolite____

Groundmass

Chlorite____

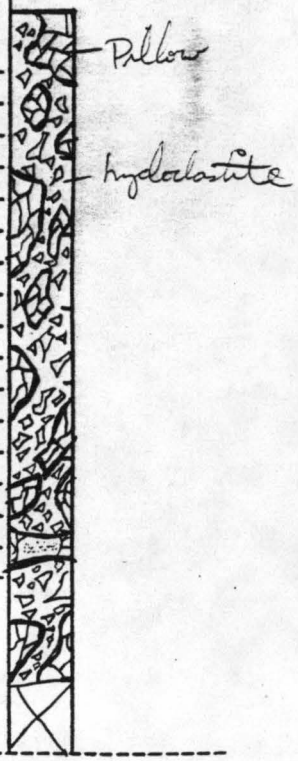
Smectite____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	✓
Pyrite	✓	
Epidote	✓	
Gypsum		
Anhydrite	✓	
Other(describe)		

COMMENTS

5' here

Pyrite & Pyrrhotite



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite + Pillows w/ 5-7% olivine phenocrysts, microphenos. in an aphanitic matrix. Olivine altered ⇒ clays. Hyaloclastite is green in color/altered ⇒ smectite, chlorite.

2 Minerals: Qtz x-tals, EPIDOTE, Smectite-Chlorite, Anhydrite, Pyrite

CORE LOG

BOX # 683 ID HOLE # 4 Sheet A

Depth range 1974 to 1978.99 meters Depth range 6479 to 6488.5 feet

Logger's Name FT Page 1 of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1 ✓	2	3	4	5	6
mega (>.5 mm)						
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	sp-sa					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7 ✓					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements ✓

Olv -> Clay ___

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ✓

Smectite ✓

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite	✓	✓
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote	✓	
Gypsum		
Anhydrite		
Other(describe)		

COMMENTS

9.5' here

Pyrite/Pyrrhotite?

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite + Pillows w/ 5-7% olivine as phenocrysts, microphenocrysts in an aphanitic matrix. Olivine is altered -> Clays + matrix is altered to Smectite-chlorite

2° Minerals: Qtz xtals, Smectite-Chlorite, Qtz xtals
Pyrite(?) & Epidote

CORE LOG

BOX # 684 HOLE # 4 Sheet A

Depth range 1978.99 to 1981.74 meters Depth range 6488.5 to 6497.5 feet

Logger's Name FT Page 1 of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SR-S					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ✓

Smectite ✓

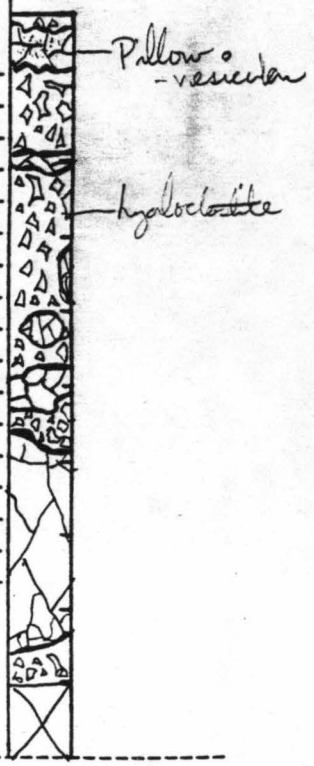
Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	

Other(describe)

COMMENTS

- 9' Lore

- Anhydrite, white Platy mineral, variscon w/ Striations, soft No fizz



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite + Pillows w/ 5-7% olivine (altered) as phenocrysts, microphenocrysts in a dark gray aphanitic matrix. Matrix altered to smectite-chlorite.

2° Minerals: Smectite-chlorite, Clay (alt olv.), Qtz xtals, Anhydrite (?), Pyrite

CORE LOG

BOX # 655 HOLE # 4 Sheet A

Depth range 1981.7 to 1984.6 meters Depth range 6497.5 to 6507 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	~					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%	3-5%					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite %	1%?					

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

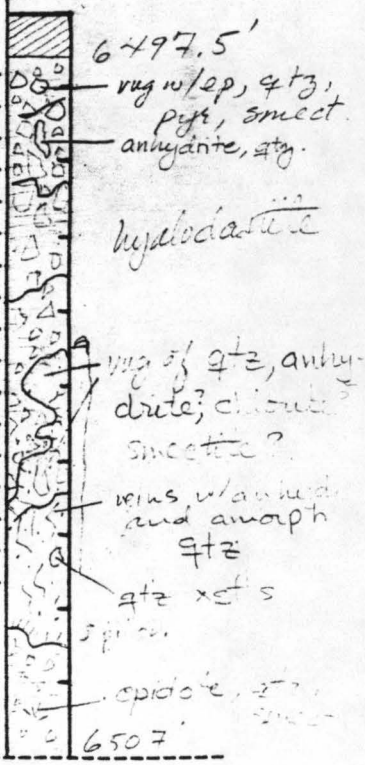
Smectite ____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote	✓	
Gypsum		
Anhydrite	✓	
Other(describe)		

chlorite ✓

COMMENTS

9.5' core in box



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, and pillow lava w/ 3-5% olivine phenos + mph and 1%? augite laths in a med grey aphanitic groundmass altering pale green.

2° min: smect, chlorite?, anhydrite, qtz, pyrite, epidote.

CORE LOG

BOX # 686 64 HOLE # 1 Sheet A

Depth range 1984 64 to 1987 38 meters Depth range 6507 to 6516 feet

Logger's Name FT Page 1 of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box ___ Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

Phyric	1	2	3	4	5	6
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SR SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	✓5-7					
	1-5%						
	<1%						
	Phenos	✓					
	mph	✓					
	ol-plag						
Comments							
Plagioclase							
	>5%						
	1-5%						
	<1%						
	Rhombs						
	Blades/laths						
	mph						
Comments							
Augite	%						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite

Plag -> Clay

Zeolite

Groundmass

Chlorite ✓

Smectite ✓

Secondary/Alteration	Fracture Fill	Vesicle Fill
	Min.	
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite		
Epidote	✓	
Gypsum		
Anhydrite	✓XRD	
Other(describe)		

6507' "anhydrite" = anhydrite, quartz and albite. RE 12/13/91

COMMENTS

9' here

2° min ad.
1) Smectite-chlorite
2) QTZ
3) ANHYDRITE
4) EPIDOTE

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite + Pillows w/ 5-7% olivine as phenocrysts, microphen. (altered) in a dark gray matrix. The Hyaloclastite is altered, lt green in color + probably Smectite-chlorite in composition.

2° Minerals: Smectite-chlorite, QTZ-xtals, Anhydrite
EPIDOTE

CORE LOG

BOX # 687 HOLE # 4 Sheet A

Depth range 1987.4 to 1990.1 meters Depth range 6516 to 6525 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	—					
Shape						
Size(x)						

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5% 3-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ____

Plagioclase

>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ____

Augite % 1%? | | | | | |

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ____

Plag -> Clay ____

Zeolite ____

Groundmass

Chlorite ____

Smectite ____

Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓ ?chalcopyr	
Epidote	✓	
Gypsum		
Anhydrite	✓	

Other(describe)

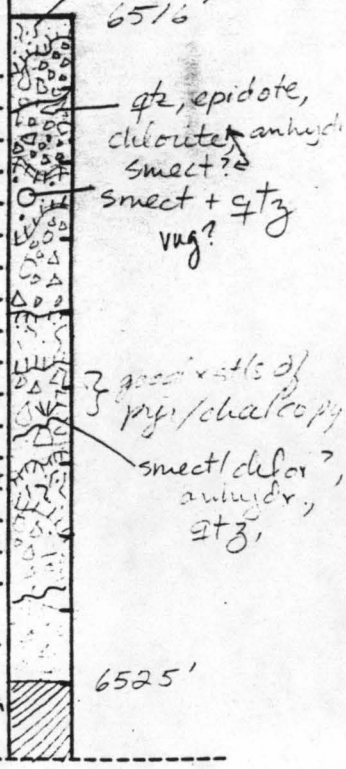
6516': chlorite? ✓XRD-MS. "chlorite" sampled found to be chlorite/smectite, quartz, adularia and chrysotile. RE 12/13/91 vug?

COMMENTS

9' core in box

1. smectite/chlorite
2. qtz.
3. anhydrite/zeolite
4. epidote

? chalcopyrite



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, and pillow lava?, w/ 3-5% olivine phenos + ~1% augite laths?

mpl in a grey-green aphanitic matrix. Angular clasts in the clastics, which are probably same most of the hyaloclastite altered green.

2° min: smectite/chlorite, quartz, pyr/chalcopyr, epidote, anhydrite.

CORE LOG

BOX # 688 HOLE # 4

Depth range 1990.13 to 1993.19 meters Depth range 6525 to 6535 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES

	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SR-SA					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						

Comments ___

Plagioclase >5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite ___
- Plag -> Clay ___
- Zeolite ___

Groundmass
- Chlorite ✓
- Smectite ✓

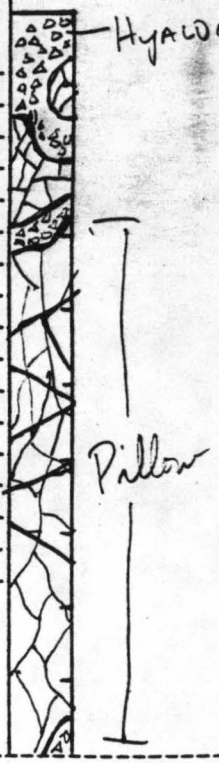
Secondary/Alteration Min.	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote	✓	
Gypsum		
Anhydrite	✓	

Other(describe)

CHALCOPYRITE ?

COMMENTS

- Chalcopyrite a Pyritehere



CRITICAL FEATURES (description of units or features by number)

1) Pillows & Hyaloclastite w/ 5-7% olivine (altered) phenocrysts micro phenocrysts in an aphanitic matrix

2° MINERALS: SMECTITE-CHLORITE, Clay (alt ol.), Chalcopyrite, QTZ XTALS, EPIDOTE, ANHYDRITE

CORE LOG

BOX # 689 .18 HOLE # 4 Sheet A

Depth range 1993 to 1995.92 meters Depth range 6535 to 6544 feet

Logger's Name FT Page ___ of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	SA-SR					
Size(x)	<1					

PHENOCRYSTS(Original mineralogy)

Olivine >5%	5-7					
1-5%						
<1%						
Phenos						
mph						
ol-plag						

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite %						

GROUNDMASS (original)

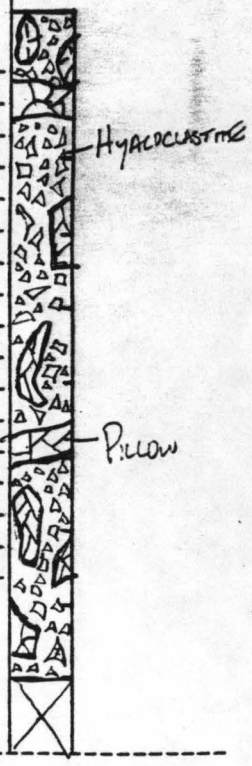
Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	Fracture Fill	Ves. fill
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite	✓	
Smectite	✓	
Secondary/Alteration Min.		
Smectite		
Calcite	✓	
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		
Other(describe)		

CHALCOPYRITE(?)

COMMENTS

- 9' Lore



CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite + Pillows w/ 5-7% olivine (altered) phenocrysts microphenocrysts in an aphanitic dk gray matrix. Hyaloclastite is altered to Smectite/chlorite.

2° MINERALS Smectite-Chlorite, clay(altered olv) Chalcopyrite, Calcite, QTZ xtals.

CORE LOG

BOX # 690 HOLE # 4 Sheet A

Depth range 1995.9 to 1998.97 meters Depth range 6544 to 6554 feet

Logger's Name RE Page 1 of 2

Type of Sample: Flow 1 Intrusive ____ Ash ____ Breccia 1

Number of Units in Box 1 Clk/Rubble ____ Carbonate ____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro(<.5 mm)	✓					
Aphyric						
Vesicles: %	<1%					
Shape	R-SR					
Size(x)	<1mm					

PHENOCRYSTS(Original mineralogy)

Olivine >5%						
1-5%	3-5%					
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						
Comments						
Augite %						

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements
- Olv -> Clay ✓
- Iddingsite
- Plag -> Clay
- Zeolite

Groundmass
- Chlorite
- Smectite ✓

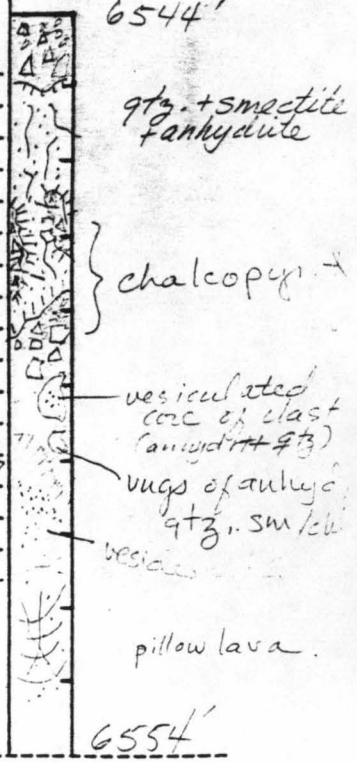
Secondary/Alteration	Fracture Fill	Ves. fill
Smectite	✓	
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous	✓	
Chalcedony		
Crystals	✓	
Pyrite	✓chalcopyr?	
Epidote		
Gypsum		
Anhydrite	✓	

Other(describe) chlorite ✓

COMMENTS

10' core in box

* chalcopyr. flakes in fracture



CRITICAL FEATURES (description of units or features by number)

1 hyaloclastite + pillow lava w/ 3-5% plag phenos + mph in groundmass of aphanitic matrix. Shard-clast + [illegible] fractional vesicles filled w/ anhydrite + qtz xtls.

5 [illegible] smect/chl, qtz. (amoph + xtl-c), chalc-pyr, anhydrite

CORE LOG

BOX # 691 1998.97 HOLE # 4 Sheet A

Depth range 1998.97 to 2001.41 meters Depth range 6554 to 6562 feet

Logger's Name FT Page 1 of ___

Type of Sample: Flow ✓ Intrusive ___ Ash ___ Breccia ___

Number of Units in Box 2 Clk/Rubble ✓ Carbonate ___

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓	✓				
mega (>.5 mm)	✓					
micro(<.5 mm)		✓				
Aphyric						
Vesicles: %	<1	<1				
Shape	SA-SR	SA-SR				
Size(x)	<1	<1				

PHENOCRYSTS(Original mineralogy)

Olivine	>5%	5-7 ✓	5-7 ✓				
	1-5%						
	<1%						
Phenos		✓	✓				
mph		✓	✓				
ol-plag							

Comments ___

Plagioclase						
>5%						
1-5%						
<1%						
Rhombs						
Blades/laths						
mph						

Comments ___

Augite % ___

GROUNDMASS (original)

Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements

Olv -> Clay ✓

Iddingsite ___

Plag -> Clay ___

Zeolite ___

Groundmass

Chlorite ✓

Smectite ✓

Secondary/Alteration	Fracture Fill	Ves. fill
Smectite		
Calcite		
Zeolite		
white fiberous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals	✓	
Pyrite	✓	
Epidote		
Gypsum		
Anhydrite		

Other(describe)

CHALCOPYRITE

COMMENTS

8' here

- Pyrite / chalcopyrite

CRITICAL FEATURES (description of units or features by number)

1) Pillows (1+2) w/ Hyaloclastite layer 5-7% olivine ac phenocrysts, microphenocrysts (altered) in a dark gray matrix. Hyaloclastite is altered to Smectite + chlorite. ↑green in color

2° Minerals EXT = Smectite - chlorite, CHALCOPYRITE